NONPOINT SOURCE DISCHARGE CONTROL ON NON-BUILTUP MILITARY LANDS

COMPLIANCE BACKGROUND ANALYSIS THROUGH OCTOBER 1999

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The views expressed in this report are those of the authors and do not necessarily reflect the official policy or position of the Department of the Army, Department of Defense, or the United States Government.

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ABSTRACT

This volume presents historical information and analyses describing the legislative status of nonpoint source water pollution discharges from unimproved lands, particularly military lands. Increasing emphasis at national and state levels on controlling pollutant discharges from nonpoint sources and on watershed management suggests that federal lands may become subject to compliance legislation in the relatively near future. The Army Environmental Policy Institute has tracked developments on this topic for six years. The pair of studies combined in this report provides reference materials and observations through September 1999 to help military land and water managers understand the issues in preparation for possible new compliance requirements. This gap in Clean Water Act coverage could be closed at any time. When, as with this case, specific language has been embedded in proposed congressional legislation for several years, the concept usually gets passed into law. Alternatively in this case, any legislative loosening of federal sovereign immunity could indirectly give states power to impose standards and procedures on federal agencies for nonpoint source runoff. The question is more *when* than *whether*.

ACKNOWLEDGEMENTS

This issue management reference tool is a decade-long team product of many dedicated contractor and AEPI staff.

First there were the many contributors to AEPI's environmental issue trend monitoring and analysis program which identified and interpreted emerging signs that nonpoint source runoff from non-urban and non-agricultural lands was beginning to be recognized as an overlooked source of pollutants. That recognition led to the question, "When might it become a formal compliance issue?"

Mr. Kenneth Genskow, then a University of Illinois graduate student and an AEPI Short Form Research Contractor, produced an excellent, but unpublished, compilation of federal and state level information and insightful observations 1n 1994. Given high anxiety at that time about agricultural runoff, the question still remained, "When?" regarding runoff from other lands.

Mr. Robert Mashburn at the DoD Southeastern Regional Environmental Office (SREO) provided the critical trigger evidence that "When?" is about *now*. SREO is increasingly experiencing state regulators' questions about runoff from the large land expanses under military management.

Finally, West and Associates assessed congressional activity from 1994 to October 1999 to document the further issue history. Their highly professional effort is the capstone which allows completion of this timely reference document expected to provide a basis for planning and informed action from headquarters to installations, as events unfold over the next few years.

All players, named and anonymous, are highly commended for their analytical abilities and patience in building this policy support product in the original philosophy of the AEPI charter. They identified a potential issue as a faint early glimmer in trend scanning, defined plausible issues likely to affect Army installations, tracked slowly gathering momentum, and alerted us all to the point of likely issue maturation when active issue tracking and management may become necessary.

CUMULATIVE TABLE OF CONTENTS

CUMLATIVE ACRONYM GLOSSARY

AEO	Army Environmental Office
AEPI	Army Environmental Policy Institute
AMC	Army Material Command
ARNG	Army National Guard
CTC	Combat Training Center
CWA	Clean Water Act
CZARA	Coastal Zone Area Reauthorization Act
CZMA	Coastal Zone Management Act
ECMP	Erosion Control Management Plan
FORSCOM	Forces Command
FWPCA	Federal Water Pollution Control Act
GRASS	Geographic Resource Analysis Support System
HQDA	Headquarters, Department of the Army
ITAM	Integrated Training Area Management
LCTA	Land Condition Trend Analysis
NEPA	National Environmental Policy Act
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPSP	Nonpoint Source Pollution
NRDC	National Resources Defense Council

NTC	National Training Center
ODEP	Office of the Director of Environmental Programs
POM	Program Operating Memorandum
POTW	Publicly Owned Treatment Works
SDWA	Safe Drinking Water Act
TRADOC	Training and Doctrine Command
USACE	United States Army Corps of Engineers
USACERL	United States Army Construction Engineering Research Laboratory
USAPAC	United States Army Pacific Command
USEPA	United States Environmental Protection Agency
WEF	Water Environment Federation

EXECUTIVE SUMMARY

Mr. Robert E. Jarrett

Army Environmental Policy Institute

ADMINISTRATIVE INTRODUCTION

This volume provides synopses of legislative, regulatory and decision issues that Army managers should be prepared to address regarding regulation of nonpoint source pollution (NPSP). It combines Mr. Kenneth Genskow's mid-1994 analysis and an update by Mike West and Associates in 1999, along with this interpretive executive summary. There has been change during the past five years, but it has not bee radical. Therefore, Mr. Genskow's discussions and reference materials (Section I) remain valid. They comprise the older history and the principal analysis of possible impacts on Army installations. West and Associates' work (Section II) extends the timeline with supplementary information and confirmation that the trend toward legislative action continues. Anyone needing the near-term federal legislative history will want to read Section II.

A wide range of readers will find what they need in this one source. For those desiring only a basic understanding, an overall view of how the NPSP issue has been evolving can be formed by reading the latter parts of this executive summary. Anyone needing greater detail to support planning or action will want to look closely at the two complete Sections. They contain information that can be of material assistance in preparing issue papers and briefings, developing comment positions for legislative and regulatory proposals when they begin to arise, developing initial state-specific reaction plans and adjusting land use practices to position installations for minimum-pain compliance.

ISSUE AND FINDINGS SUMMARY

NPSP is considered the leading current cause of contamination in the nation's water bodies. Therefore, it demands more serious regulation than in the past. The term NPSP refers to any water pollution not originating from a specific source such as a pipe or conduit. Stormwater typically carries this type of pollution in the forms of sediments, nutrients, heavy metals, salts, and chemicals (such as pesticides) into water bodies; eventually corrupting the water supply with displaced soils and the introduction of chemical toxins, and by raising waterbody bed levels.

Furthermore, land use and land management practices heavily influence NPSP. Potential imposition of controls on use and management of land has wide implications for the United States Army, since much of the Army's land is a critical resource for readiness training programs. Illustrations of the types of damage training activities can cause to land include: impact areas contaminated with heavy metals and explosives from munitions, drop zones as major sources of siltation in local water bodies, training areas with histories of spilled petroleum products, and the movements of tracked vehicles as the main cause of local sediment NPSP. The full magnitude of environmental impacts can be envisioned by imagining the combined NPSP

effects on the approximately 12,000,000 acres managed by the Army. Therefore, these impacts from the Army's operations and training activities will undoubtedly be a source of land use management concern—to be considered whether or not national legislation is passed to tighten control of NPSP.

Although Congress has not enacted any major legislation amending the Clean Water Act (CWA) regarding NPSP, states have taken some initiatives in implementing certain nonpoint source controls (appendices A and B of Section I, pp. xx–xx). State NPSP controls have added a new dimension to the issue of pollution management precisely because the states' roles in regulating the Army are unclear. This lack of clarity comes from the states' own uncertainty regarding the regulation of federal facilities under their respective legislation. Bills dealing with nonpoint source pollution control have been introduced in the 103rd, 104th, 105th and 106th Congresses. There has been congressional debate concerning the relaxation of federal sovereign immunity in favor of the states in a number of fields, including Clean Water Act amendments. While the congressional debate continues regarding when and how regulations will be promulgated or implemented for federal installations, the Army can prepare by anticipating likely effects the new proposals might have.

The original purpose of AEPI's NPSP research was to examine proposals existing in mid-1994 for a new Clean Water Act (CWA) and to anticipate what might happen to Army combat training activities if a new act were to require strong state NPSP controls. Because of legislative mood changes, postponement of action occurred, but not cancellation of interest. A number of anticipatory insights can be drawn to help avoid undesirable surprises in the event federal or state controls on NPSP tighten with respect to training lands. Preparations can be made by resolving questions such as:

- What consequences might the Army face from state enforcement?
- In what ways might installations need to strategically transform their management procedures in order to comply? and,
- How might Army management react to minimize mission disruption?

An opportunity still exists to plan for these and related issues before installations are caught in the unpleasant position of either catching-up with requirements that could have been foreseen, and/or paying avoidable noncompliance costs.

Additionally, the original Genskow research paper provided background information and policy considerations to help the Army guide its land management programs and prepare for possible future regulation of NPSP. Those amassed facts and findings should prove helpful in developing policies to maintain the Army's training mission and to meet NPSP regulatory requirements when they emerge. The three suggested policy avenues derived from Genskow's research are:

- Change nothing and wait for states to require and enforce new management practices,

- Identify ways to reduce NPSP without greatly affecting training programs and ensure that land management practices are likely to be compatible with reasonably probable new state requirements, and

- Make land rehabilitation and erosion protection a high priority for all installations and provide funds and manpower to achieve results.

West and Associates affirm that the issue remains alive two Congresses later. They also point out that the continuing mood and pressures to give states greater sovereignty over federal agencies in matters of environmental compliance argue for preparedness.

As a result, wisdom suggests that the following preparations should be started now in order to avoid blind-siding and acrimonious periods of noncompliance later:

- Compile state's laws, regulations and standards that could be brought into force with little or no warning, as they would affect each installation, respectively,

- Evaluate each installation's operations, land management programs and NPS discharge quality with respect to their respective state's laws, regulations and standards,

- Participate from the outset in all related federal and state hearings and comment opportunities, and

- Draft inputs for Program Operating Memorandum (POM), Budget Year and environmental program requirement submissions to support necessary Class 1 compliance projects. (Need is likely to arise well within the POM "out year" envelope.)

BACKGROUND AND UPDATE OF CWA

The following is fairly detailed for a summary, but serves to show the complicated range of demands and options entailed in proposals to control NPSP.

The Federal Water Pollution Control Act (FWPCA) of 1972 (later re-titled the CWA) was the first national legislation to define NPSP. This act required a survey of water areas to determine which states were the most severely impacted by NPSP and to develop area-wide plans to mitigate the pollution. By 1990, all 50 states possessed at least partially approved plans covering agriculture, mining, construction, silviculture, waste disposal, hydrological changes, and urban runoff. As of 1994–95, no minimum federal standards for NPSP existed, and states were not required to enforce their existing plans. Regional, geological and climate differences partly account for some states granting the issue more urgency than others do. While built-up areas of installations had to comply with urban runoff standards, regulation of non-agricultural training

lands remained a relatively untouched issue. In the meantime, agriculture has had to respond to major runoff controls for sediment, insecticides, herbicides and fertilizer.

--*Proposals Through 1994 Affecting Federal Facilities*

While the Genskow paper was being written, the 103rd Congress was considering two bills for CWA reauthorization (S. 2093 and H.R. 3948) in addition to the administration's CWA revision preferences. That resulted in one 104th congressional bill for reauthorization (H.R. 961), reported out of House Committee on 6 April 1995. That proposed bill would have waived sovereign immunity and subjected federal facilities to civil fines for violations of state and federal law. H.R. 961 also allowed the president to grant exemptions for one-year intervals, if in the paramount interest of the United States. Furthermore, the president could have exempted a federal source from complying with any requirement (except Section 306, National Performance Standards, and Section 307, Toxic and Pretreatment Standards), and he/she could also have exempted Department of Defense aircraft, weaponry and equipment for three-year intervals.

H.R. 961 called for subjecting federal employees to criminal sanctions. That bill required federal agencies that owned or managed land within a watershed covered by a nonpoint source program to coordinate nonpoint source control measures with state programs. And, H.R. 961 authorized Environmental Protection Agency (EPA) administrative enforcement actions against other federal departments.

--*Proposals through 1994 Affecting States*

Past CWA reauthorization efforts included proposals to strengthen Section 319 of the CWA, which allowed states to develop area NPSP plans and new watershed programs. The proposed Section 319 included some of those original proposals and additionally proposed allowing EPA to publish final guidance concerning model state-based nonpoint source management practices and measures within 18 months. After that period, states would have had 30 months to submit Nonpoint Source Management programs to attain water quality standards by 31 December 2009.

Furthermore, H.R. 961 proposed requiring states to develop nonpoint source pollution management plans, achieve water quality standards in 15 years (which were to be reviewed every five years, as opposed to the previously directed three years), and establish stormwater management programs using both voluntary and mandatory discharge control activities based on pollution severity. Additionally, incentives were to be provided to states to develop voluntary watershed-wide pollution prevention strategies.

H.R. 961 also considered adding Section 321 to allow states to submit Watershed Management Programs to protect, restore, and maintain water resources and aquatic ecosystems within one or more watersheds. Those programs were to identify the state agency and entities responsible for implementation. Section 321 would also have provided incentives for states to implement such programs and would have authorized multipurpose EPA grants to states with approved programs.

Section 402[p] of the CWA pertaining to stormwater discharge permits was also considered as an addition to the CWA. It would have allowed the following exclusions for permit requirements (except permits issued prior to 4 February 1987):

- industrial sites, if stormwater was not contaminated by contact with an industrial activity, or entirely from a construction activity of less than five acres; and,

- municipalities with populations less than 100 thousand.

This potential Section 402[p] might have allowed consolidated permits for municipalities and general and group permits. If so, permits could not require compliance with a numeric effluent limitation or an applicable water quality standard before 31 December 2009. Finally, Section 402[p] claimed to promote cost-effective and economically achievable measures, and possibly authorize $20 million per fiscal year for municipal grants and totals compliance deadlines for municipal systems.

If enacted, bill H.R. 961 would have added yet two other sections, 402[r] and 402[s], and addressed the issue of unfunded mandates. Section 402[r] was to deal with combined sewer overflows. That draft section required permits to conform to the EPA combined sewer overflow control policy of 11 April 1994. The House passed the bill, but the Senate did not consider it.
--*Proposals Since 1994 Affecting Federal Facilities*

Seven bills related to CWA to give states waivers of sovereign immunity to impose water quality fines and penalties on federal facilities have failed.

CONCLUSIONS FROM WEST AND ASSOCIATES

The entire remarks are quoted here, as they are quite succinct:

> **"**No major federal legislation relating to nonpoint sources under the Clean Water Act has been enacted since the 103rd Congress. It is uncertain whether any such legislation will be enacted during the remainder of the 106th Congress. The most likely prospect is the enactment of coastal zone or estuary related legislation to address nonpoint sources. Less likely, would be the enactment of federal facility Clean Water Act compliance legislation. According to the committees of jurisdiction, it is very unlikely that any comprehensive Clean Water Act legislation would be enacted in the 106th Congress.
>
> "Consequently, the imposition of new federal requirements on the Army in the foreseeable future is problematic. Therefore, concrete, statutory compliance requirements to deal with nonpoint sources are not likely to be available to secure funding for major initiatives in the Department of Defense budget process in the near term.

"*On the other hand, it seems inevitable that nonpoint sources will have to be addressed as they represent the most serious threat to future water quality* (emphasis added). Ongoing administrative and regulatory initiatives, or state programs, or the enactment of comprehensive federal requirements dealing with nonpoint sources are going to generate significant management and resource requirements affecting the Army and other federal agencies. Thus, even in the absence of concrete requirements today, prudence dictates that the Army and other federal agencies do what they can to ensure that current land management practices will facilitate the timely transition to compliance when stringent nonpoint source requirements are imposed in the outyears."

SECTION I

NONPOINT SOURCE POLLUTION: IMPLICATIONS OF CLEAN WATER ACT REVISIONS ON ARMY COMBAT TRAINING AND LAND MANAGEMENT

Mr. Kenneth D. Genskow

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ABSTRACT

Nonpoint source pollution is gaining increased recognition as a leading cause of pollution in the nation's waters. Army combat training activities contribute to nonpoint source pollution through soil displacement and chemical release. Several states require the Army to control nonpoint source pollution from training activities, but most states do not. This might change with the passage of a new Clean Water Act that could require all states to develop and enforce nonpoint source control programs. This report examines current proposals for a new Clean Water Act and anticipates what might happen to Army combat training activities if a new Act does require strong state nonpoint source pollution controls. This is accomplished by looking at Army training activities as sources of pollution, Army efforts to control this pollution, and current state nonpoint source control programs and regulations. Appendices include citations for state regulations. In working towards the goal of environmental stewardship, the Army has developed land management programs that control factors adding to nonpoint source pollution. However, these programs are young and not yet fully implemented. A general finding is that installations in several states might not be prepared for surprise, strict nonpoint source pollution control. Potential requirements could seriously impact current training activities in those states.

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The Army Environmental Policy Institute's mission is to assist the Army Secretariat in developing foresighted policies and strategies to address environmental issues that may have significant future impacts on the Army. The views presented in this document do not necessarily reflect the policies or views of the respective institutions of the contributors, reviewers and staff, nor should they be construed as an official Department of the Army position, unless so designated by other authorized documents.

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Certain statements and data are of necessity dated compared to events that might occur prior to publication. No attempt can be made to guarantee that congressional dynamics or other factors will not render some parts of this paper obsolescent or obsolete by the time of its formal release.

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EXECUTIVE SUMMARY

Nonpoint Source Pollution

Nonpoint source pollution (NPSP) refers to any water pollution not originating from a discrete source such as a pipe or conduit. It is primarily transferred by stormwater runoff, which carries sediment, nutrients, and chemicals into water bodies. Increased nutrients deplete available oxygen necessary to support diverse aquatic systems. As point source discharges are brought under control, nonpoint source pollution becomes the primary pollutant in many waters (USEPA, 1992).

NPSP Problems with Army Training

Army training activities and especially tracked vehicles used in training displace soil and add to sedimentation problems in water bodies. Training area roads, stream crossing points, paratrooper drop zones, and artillery impact areas generate erosion which leads to nonpoint source pollution and nutrient increases in waterways. Petroleum product leaks and leachate from ordnances are also potential contributors to NPSP.

Summary of NPSP Provisions in Clean Water Act Bills

Two bills for reauthorization of the Clean Water Act (CWA), the nation's leading water protection legislation, are currently being considered by the 103rd Congress (Senate Bill S. 2093 and House Bill H.R. 3948). President Clinton's administration has also published a CWA rewrite version stating their preferences for a revised act (USEPA, 1994). This reauthorization has the potential to put limitations on Army training activities that produce nonpoint source pollution.

Both the Senate and Clinton Administration versions of this CWA rewrite would require states to develop new watershed and NPSP management programs, which would subject federal facilities to the same planning and management requirements as other land holders in the area. Currently, as a result of a 1992 court decision (*DOE v. Ohio*, 118 L. Ed. 255 (1992)), federal facilities are not subject to fines for CWA violations. All three versions under consideration would clarify section 313 of the CWA to allow states to enforce and penalize federal facilities for violations of the CWA. The bills also include a Presidential waiver for activities deemed paramount to the United States, but it is unreasonable to expect this waiver will be used for Army training actions.

All three proposals call for strengthened polluted runoff provisions. This is likely to happen through strengthening CWA section 319 directing states to develop area NPSP plans. Revised state plans would require enforcement provisions before EPA would approve them, and EPA would be authorized to develop their own enforceable plans if states fail to do so. Definitions of best management practices (BMPs) are likely to get stronger, thus requiring "the greatest degree of pollution reduction achievable through application of the best available nonpoint pollution control..." (language from both leading House and Senate bills - S. 2093, H.R. 3948). Previous CWA language called for management practices to be of the "maximum extent practicable." Federal activities could be forced to apply BMPs, as would any contracts or licenses for activities on federal lands.

As of early August, a streamlined CWA was still being discussed (BNA, 5 August 1994). A streamlined version would include strengthened polluted runoff controls. Any CWA reauthorization has a very slim chance of passing this year.

Assessment of NPSP Regulatory Issues Facing the Army

Several key new regulatory issues could face Army training areas as a result of the CWA rewrite. States could require tracked vehicle maneuvers to be restricted from riparian areas and eliminate stream crossings except at specially reinforced crossing points or bridges. New regulations could also require vegetated buffer strips for artillery impact zones, erosion protection for access roads, and location and frequency restrictions for engineers' use of pontoon bridges and construction. New regulations could also add land management requirements for leased activities such as grazing, agriculture, and forestry.

Each state has its own water quality and waterbody classification standards. States also establish NPSP control programs for major pollutant contributors like agriculture and construction, but unique actions such as those for Army training might not be clearly restricted. This makes it difficult to determine just where installations fit into state regulations for NPSP. And, the variety of state programs and differences between regional runoff make one central standard for all installations inappropriate and undesirable.

Installations in some states already face difficult restrictions on activities and are developing programs to address them. New federal CWA legislation will put sharper teeth into those state programs and will require other states to develop similar programs. Many installations could be caught unprepared for sudden changes in state land management requirements which could carry fines for noncompliance. Appendix A examines Army training installations and classifies them according to susceptibility for impact by the CWA.

Policy Options/Recommendations

The Army needs to determine a method to increase land rehabilitation and vegetation efforts, develop vegetative buffer strips around sediment producing activities, and restrict training activities in riparian areas. Installations in states previously lax in NPSP control should prepare for the imposition of tight controls and mandatory management measures. Installations in states already requiring strict measures should expect to be subjected to enforceable fines for noncompliance in those states.

Improved land management programs and increased priority for land rehabilitation will reduce the chances of violating new water quality regulations and provide long-term benefits for the land and continued training. Improving land management in advance of state requirements will show the Army to be a proactive leader among federal land managers.

INTRODUCTION

Problem

Nonpoint source pollution (NPSP) is increasingly recognized as a major pollutant source that demands more serious regulation than applied in the past. Currently, state agencies report pollution from nonpoint sources as the leading cause of water pollution, accounting for over half of impairments of lakes, rivers and estuaries (USEPA, 1992). Army training activities contribute to nonpoint source pollution and may be affected by regulatory restrictions.

Few states currently have nonpoint source control regulations that significantly limit training activities. Revised state programs and mandatory adoption of federal standards might force states to tighten control of land disturbing activities which generate NPSP—including Army training. Increased control could come in the form of mandatory management practices or possibly, but less likely, permit systems for stormwater runoff from training lands.

Leading Clean Water Act (CWA) reauthorization bills introduced in the 103rd Congress included consideration of federal standards for state nonpoint source pollution management. Although each of the major bills (S. 1114, S. 2093, H.R. 2543 and H.R. 3948) include a provision which would allow the President to grant waivers for activities deemed to be in the national interest, it seems unlikely that Army training activities would be granted a waiver. The potential impact of new federal nonpoint source management standards on Army training activities needs to be examined to prepare the Army for possible land resource management changes.

Purpose of this Paper: Training Focus

This paper examines activities related to Army combat training that might be affected by new Clean Water Act requirements for nonpoint source pollution management. The intent is to provide background information and policy options to help the Army guide their land management programs and prepare for possible future regulation of nonpoint source pollution. The information is intended to support efforts by the Army Environmental Policy Institute (AEPI) to assist the Army Secretariat in developing environmental policy. This paper examines NPSP impacts of training activities, the legislation and regulations limiting those impacts, and possible directions additional restrictions may take.

Definitions of Point and Nonpoint Source Pollution

The terms "point" and "nonpoint" source pollution stem from the 1972 Federal Water Pollution Control Act Amendments (33 U.S.C.A § 1251 et seq.) which are now collectively known as the Clean Water Act. Nonpoint source pollution refers to pollution not originating from a discrete source. "Diffuse source" and "poison runoff" are substitute terms for this designation which is often applied to anything not fitting into the "point source" definition in the Clean Water Act (CWA). Section 502(14)) of the CWA states:

> The term "point source" means any discernible, confined, and discrete conveyance, including, but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from agriculture.

NPSP is primarily transferred by stormwater runoff which carries sediment, nutrients, and chemicals into water bodies. These pollutants corrupt water supplies and raise waterbody bed levels. Displaced soils and adsorbed pollutants create high levels of turbidity, increase nutrient loads, and introduce chemical toxins into affected water bodies. Nutrient deposits in ponds and slow flushing bodies of water accelerate eutrophication (abnormally high growth rates and accumulation of living matter) which depletes the water of oxygen necessary to support diverse aquatic life. Other typical pollutants in stormwater runoff include heavy metals and salts, pesticides, and petroleum products.

Sediment impact varies according to the nature of the affected water body. For example, cold-water streams supporting fisheries are very sensitive to temperature changes caused by sediment build- up, while slow flushing ponds, lakes, and estuaries retain pollutants and are affected for long periods of time. Impact also varies by geographic area, land use and soil type. For example, diffuse pollution from urban runoff tends to be worse with initial rains, while agricultural runoff problems increase with continuing rains. An additional problem is that once sediment is mobilized, it can continue to move with runoff.

Land use and land management practices heavily influence NPSP. Agricultural activities are the most pervasive contributors through nutrient-rich livestock waste contamination and erosion

caused by crop farming practices and pasture and rangeland grazing (USEPA, 1984). Silviculture, urban storm runoff, construction, and mining activities also contribute to nonpoint source pollution (USEPA, 1984). Chemical contamination of groundwater is another problem associated with nonpoint source pollution. Though the sources may be large in areal extent, runoff from diffuse sources like animal feedlots, publicly owned treatment works (POTWs), and industrial complexes discharging into discrete conveyance systems fall within the point source definition and are subject to National Pollutant Discharge Elimination System (NPDES) permits to operate (CWA § 402).

Current Regulation of Nonpoint Source Pollution

Nonpoint source pollution is not currently subject to enforceable federal regulatory requirements. State programs to identify and control NPSP, initially encouraged under section 208 of the CWA, became required under section 319, added by the 1987 Water Quality Act. However, section 319 includes no enforcement mechanism to ensure that states actually develop and implement programs. Nor does section 319 require states to have enforceable programs. Coastal states are required to have enforceable policies to manage nonpoint sources more closely for coastal areas under the 1990 Coastal Zone Area Reauthorization Act. Still, the only federal enforcement authorized is withholding grant money to support the NPSP programs. In addition to section 319, the 1987 Water Quality Act also created section 320 establishing the National Estuary Program. Waters feeding designated national estuaries were to be given special protection (Arbunckle and Randle, 1990).

State programs for nonpoint source pollution control vary considerably. Most states encourage landowners to adopt voluntary nonpoint source control methods. Other states like North Carolina, New Jersey, Hawaii, and Washington require consideration of nonpoint sources through mechanisms like detailed erosion control plans and implementation of best management practices (BMPs) at disturbed sites. North Carolina requires erosion control plans 30 days before the start of any land disturbing activity (see Appendix A). Some states have enabling acts allowing local jurisdictions authority to create their own erosion control measures. Most state programs place heavy emphasis on voluntary conservation and management practices.

Two main reauthorization bills for the CWA are still under consideration by the 103rd Congress (the Water Pollution Prevention and Control Act of 1994 (S. 2093) introduced by Senate Public Works Subcommittee Chairman Max Baucus and a substitute bill (H.R. 3948) introduced by House of Representatives' Public Works Chairman Norman Mineta. Previously, Senator Baucus' bill (S. 1114) and Representative James Oberstar's Nonpoint Source Water Pollution Prevention Act of 1993 (H.R. 2543) led the debate. All of these bills emphasize reducing NPSP through water quality standards and land use restrictions. President Clinton recently released his Administration's objectives for a new CWA (USEPA, 1994). The Clinton initiative suggests authorizing the EPA to establish enforceable minimum NPSP controls for states not developing their own approved programs.

It is unlikely that any CWA reauthorization will pass this Congress. However, strengthened state NPSP programs are likely to emerge as part of eventual amendments. These revised state programs might require states to tighten their control over land disturbing activities including

Army training. The Clinton Initiative recommends that federal facilities be required to "implement management measures in the same watersheds and to the same extent as non-Federal entities, except for individual cases where the President determines it to be in the paramount interest of the United States to provide an exception"(USEPA, 1994). If the new CWA clearly articulates compliance for federal facilities, the Army could be forced to implement BMPs or cease activities that generate NPSP in some areas.

Nonpoint Source Pollution on Army Lands

The United States Army controls roughly 12 million acres of land in the United States (HQDA, 1991). Many activities on urban and rural Army land contribute to NPSP. Tracked vehicle maneuvers, construction, artillery practice, Airborne training in drop zones, and engineering training activities can all contribute to NPSP through their impacts on the soil and their potential for chemical spills and leaks. These activities affect vegetation covering the soil and can affect soil porosity through compaction. On sandy soils the result can be to churn the sand and make reestablishing vegetation very difficult (Thurow, et al., 1993; Diersing et al., 1988). The Army has taken steps to mitigate the environmental impact of its training activities, but many programs are still being established.

Many of the Army-specific land uses are critical components of Army training programs, and limitations placed on these activities could significantly affect the way the Army conducts training exercises. This problem is compounded by land losses due to downsizing, limitations on land use due to endangered species protection requirements, and a need for larger parcels of training land to accommodate modern weapons systems. New CWA restrictions could potentially detract from the "realism" of such training areas and the effectiveness of the training. Many additional activities on training lands also produce nonpoint source pollution. These uses include agricultural production, grazing, forestry, and firebreaks maintained for range safety.

Stormwater from containment areas collected in municipal stormwater or combined drainage systems is subject to NPDES permits for municipal stormwater treatment. Publicly owned systems can require separate permits for industrial contributions, and industrial stormwater management plans are currently being developed for many Army installations (Scholze and McNeilly, 1993). Most stormwater runoff from non-cantonment areas flows directly into natural drainage systems and is currently not treated or subject to permitting.

Scope

This report addresses nonpoint source pollution on Army combat training lands in the United States. This focus precludes much NPSP on AMC installations and in cantonment areas of training installations. The intent of this paper is to provide background and some policy options for addressing NPSP on training lands. These options are not strongly evaluated and do not include implementation plans or suggestions.

Methodology

This study uses information collected through literature review, regulatory review, and several open-ended telephone interviews. The study focuses on several key issues: training activities contributing to NPSP, current state NPSP regulations, likely emphasis of future federal standards, and the potential impact regulatory changes may have on training activities. The findings should prove helpful in developing policies to maintain the Army's training mission and meeting NPSP regulatory requirements.

The first step was a literature review encompassing nonpoint source pollution sources, nonpoint source control methods, Army training activities and facilities, and Army measures to control nonpoint source pollution. This information came from various scientific journals, government agency reports, and Army pamphlets and training circulars. A regulatory review of federal and state nonpoint source control initiatives followed the literature review. This included NPSP control aspects of the Clean Water Act, the Coastal Zone Area Reauthorization Act, state programs resulting from those acts, and other state erosion control regulations. State programs were analyzed through summaries of their CWA section 319 reports, state water regulations compiled by the Bureau of National Affairs (BNA) and the Computer Aided Environmental Legislation System (CELDS) operated by the University of Illinois at Urbana-Champaign under contract with the US Army Corps of Engineers. Study also examined proposals before the 103rd Congress for the Clean Water Act reauthorization and testimony from CWA reauthorization hearings.

Several installations were contacted regarding their current NPSP control programs and their opinions about the impacts of increased regulation. Information from these telephone interviews was combined with information from the literature review to anticipate potential impacts of various regulatory possibilities on Army combat training activities.

Reading this Paper

Six chapters of background and analysis and an appendix with detailed information on Army installations and state NPSP programs comprise this paper. Chapters 1 and 2 outline the Army combat training program, particular combat training activities that generate nonpoint source pollution, and the Army's efforts to mitigate the impact of combat training on its land resources. Chapter 3 provides information on federal legislation and state and federal regulations concerning nonpoint source pollution. Chapter 4 discusses possibilities for the current CWA reauthorization and some potential directions legislation and regulations could take in the future. Chapter 5 assesses the current situation for state NPSP regulations and Army combat training. The final chapter draws conclusions on the severity and immediacy of federal nonpoint source controls on Army combat training, and suggests policy options based on these findings.

Appendix A, the first and main appendix, consists of a matrix linking Army training activities and state nonpoint source pollution programs. It is a key reference for many discussions throughout the paper. The matrix divides Army combat training lands by state and compares information about state regulatory programs with training activities generating nonpoint source pollution at each installation. It also provides a measure of the impact future federally mandated

standards might have on each installation based on each state's current program, the particular range of training activities taking place in that installation, and the importance of that installation to the Army's combat training program. This information can help the Army prioritize implementation of NPSP and erosion control plans.

CHAPTER 1
ARMY TRAINING SOURCES OF NONPOINT SOURCE POLLUTION

How does Army training concern state water quality regulators? This chapter examines Army training activities and how they produce nonpoint source pollution. In general, NPSP originates from sedimentation caused by physical maneuvers and artillery practice and from chemical and heavy metal contaminants leaching from explosives or from vehicle maintenance and repair. Most research to date has focused on soil conservation and protecting habitats from maneuvers (Goran, et al. 1988, Diersing et al., 1988, Thurow, et al., 1993). Additionally, EPA has identified 5 main methods of increased nutrient loading, all of which result from combat training: soil disturbance, displacement of vegetation, altered hydrology, artificial inputs (fertilizer, etc), and air pollution (USEPA, 1985: p. 232). Chemical spills and leaching can also add to NPSP. Impacts of training activities vary by location and are influenced by scope, timing, and intensity of activities as well as the climate and soil type involved. Similar activities can have quite different results at different installations.

Army Training

The goal of Army combat training is "to produce a force trained to mobilize, deploy, fight, and win anywhere in the world,"(AR 350-1, 1985, p. 6). Realistic combat training provides a means of developing and maintaining proficiency and readiness to meet this goal. For training to be realistic, conditions must replicate as closely as possible those that would be encountered in actual combat. This includes coordinating and mobilizing the many separate fighting and support units involved in armed engagement. Army training requirements are set forth in field manuals that follow the Army's "Air Land Battle Doctrine," which prescribes combined air and land force coordination.

Before integrating with larger units in combined arms training, individual units must master their roles through separate training activities. Units follow prescribed requirements necessary to become ready for combat. Table 1.1 provides an overview of unit sizes and composition. Soldiers, commanders, leaders and crews are all assessed based on their performance in training, their adherence to doctrine, and their innovation in carrying out training instructions (HQDA, 1991). Training is conducted at major training areas (MTAs), local training areas (LTAs), and weekend only training (WET) sites. LTAs and WET sites emphasize weapons and maneuver efficiency for smaller units. MTAs have enough range and training land to support large combined arms and maneuver training. Appendix A includes a listing of training capacity of each installation based on unit size.

Table 1.1 Combat Forces Structure

Unit	*Composition*	*Soldiers*	*Components*	*Remarks*
Army	2 or more Corps	50,000 +	commanded by a 4 star General	Corps
2 or more Divisions	20,000 - 45,000	commanded by a 3 Star General	Division	3 Brigades
10,000 - 15,000	combat, combat service, and combat service support units.	commanded by a 2 Star General	Brigade/ Regiment/ Group	2-5 Combat Battalions
3,000 - 5000	combat, combat service, and combat service support units may be attached	commanded by a Colonel	Battalion/ Squadron	2-6 Companies
300-1000	Armor, Mechanized, or Infantry combat, combat service, and combat service support units	commanded by a Lieutenant Colonel. Armored Cavalry of similar size called Squadrons	Company/ Battery/ Troop	3-4 Platoons
62-190	Armor: 14 Tanks Mechanized: 13 BFVs	commanded by a Captain. Artillery of similar size called a Battery; Armored Cavalry of similar size called Troops	Platoon	variable
16-44	Infantry: 3-4 Squads; Armor: 4 Tanks; Mechanized: 4 BFVs	commanded by a Lieutenant	Section/ Squad/Crew	4-10
Infantry, Artillery, or Engineer	commanded by a Sergeant			

source: adapted from Force Composition and DA PAM 10-1 (1994)

Trends in Army Training

The Combat Training Center (CTC) Program uses specific installations for realistic training scenarios (Table 1.2). Units across the Army come to the CTCs for training unavailable anywhere else. CTCs provide the most realistic battle training experience available during peacetime. Training includes combat against a CTC host opposing force. During this training, training managers collect information for later analysis and review in order to inform commanders of their actions and results. This training provides an opportunity to assess the individual unit. Individual units rotate to CTCs only once every 18-24 months. The Army intends to train all commanders of combat maneuver battalions at least once during a tour (HQDA, 1991).

A new Combined Arms Training Strategy (CATS) incorporates high technology training aids, devices, simulators, and simulations to add realism to unit training. These include tactical laser engagement systems and battle staff simulations. The goal is to create a realistic network of simulations to complement and reduce demand for CTCs (HQDA, 1991). A shift to new training technologies could reduce environmental impacts created by live fire .

Table 1.2 Premier Combat Training Centers

Component	***Location***	***Use***
National Training Center (NTC)	Fort Irwin, CA	provides mid- to high-density combat training to close combat (heavy) and selected non-mechanized units
Combat Maneuver Training Center (CMTC)	Hohenfels Training Area, Federal Republic of Germany	provides mid- to high-density combat training to close combat (heavy) units
Joint Readiness Training Center (JRTC)	Little Rock Air Force Base and Fort Chaffee, AR; Fort Polk, LA	provides deployment and low- to mid-intensity combat training for non-mechanized combat units
Battle Command Training Command (BCTP)	Fort Leavenworth, KS	provides command and battle staff training in the mid- to high- intensity spectrum of conflict for division and corps commanders, battle staffs and major subordinate commanders using Corps Battle Simulation Centers Worldwide

source: AR 350-50, 1988 and DA Pamphlet 10-1, 1994.

Nonpoint Sources of Pollution from Army Combat Training

Areas subject to erosion and sediment transport are under great risk for generating nonpoint source pollution from Army combat training activities. These areas include riparian areas and

drainage crossing areas, denuded hillsides, steep slopes, and areas generally bare of vegetation. Location and climate also affect how these activities produce impacts. Arid regions are more likely to be affected by flash flooding while foliage and absorbent soils in wooded areas are less likely to produce sediment from heavy rainfall. Soil type also plays an important role. Some soils are less mobile but allow pollutants to transfer more rapidly along the surface. Soils with high infiltration rates that drain quickly may not affect surface water, but transfer material spills more quickly to groundwater. Groundwater contamination from chemical nonpoint sources is another serious concern. It is important to realize that climatic differences by region preclude the application of a single, Army-wide set of activity standards. The same activities will have different impacts depending on where they occur.

Units taking part in individual and combined arms training each have separate training needs and impact the environment in different ways (Table 1.3). Generally, tracked vehicles, artillery, engineer training, and drop zones cause the greatest NPSP impact by damaging the soil surface or compacting the soil, thus reducing its porosity and lowering its infiltration rate.

Tracked Vehicles

Tracked vehicles include tanks, mechanized artillery, armored personnel carriers, engineering earth moving equipment, and various support equipment. Improvements in speed and mobility of these vehicles have further intensified their ability to impact training land. The U.S. Army Corps of Engineers (USACE) for many years has studied the broad environmental impacts of tracked vehicles, especially their tendencies to uproot vegetation and disturb and compact soil (Goran, et al., 1983; Braunack, 1986; Shaw and Diersing, 1990). One comprehensive report (Goran, et. al, 1983) examines tracked vehicle impacts on mammals, birds, vegetation, and soil at nine major training installations. The Army Corps of Engineers has conducted a series of tests on tracked vehicle impacts to determine mobility under different conditions, but were more concerned with ability of vehicles to cross-terrain than the long-term impacts of vehicle crossings on soil and vegetation. Recent studies have looked at capacity levels for sustained tracked vehicle use (Diersing, et al., 1988), and the effects of tracked vehicles on land hydrologic characteristics (Thurow, et al., 1993).

One study absent from the literature is the soil impact of different types of maneuvers by different tracked vehicles. For example, casual observation suggests that particular turning maneuvers involving locked tracks create more disturbance than wide angle turns. Soil type and climate also influence the amount of disturbance from use and the chances for re-establishing vegetation. Tanks also train on tank tables which are firing and maneuver stations for developing crew skills. Tracked vehicles create additional NPSP through petroleum products leaks and field maintenance.

Table 1.3 Combat Arms Forces

Unit	***Equipment***	***Remarks***
Regular Infantry Special Forces Rangers	automatic weapons mortar; anti-armor; antitank	foot soldiers bivouac effects on vegetation and steep slopes.
Mechanized	armored personnel carrier; infantry fighting vehicle; armored command vehicles; tracked cargo carrier HMMWV	heavy tracked vehicles affect soil, vegetation, and runoff. — quick maneuvers are especially harmful
Aviation	air cavalry — helicopter supported light infantry	refueling spill potential
Air Defense	chaparral air defense system; antiaircraft missiles; multiple launch rocket systems - aerial gunnery	tracked and wheeled vehicles and trailers — same problems as mechanized
Armored Cavalry	battle tanks	impacts from tracks and shells
Field Artillery	155mm self-propelled howitzer; 155mm howitzer; 8-inch self-propelled howitzer	tracked and wheeled vehicles and trailers. impact from shells
Engineers: Fortifications Bridges Mines Demolition	assault and pontoon bridges; ditching machines; full tracked dozers; heavy trucks tracked combat engineer vehicle; armored combat earthmover (M9) light tracked recovery vehicle; mine clearing charge launchers; automated mine laying systems; mine clearing rollers	heavy construction equipment and earthmoving activities. Bridges and pontoons can have impact on riparian erosion vehicles for setting and removing mines lave track impact. Demolition areas have chemical and soil displacement impacts

Artillery

Artillery, aerial gunnery, and mortar fire can displace large amounts of soil upon impact. Because of the danger of these weapons, they tend to be oriented towards and fired into common impact areas. However, not all explosives are fired into special impact areas. Some firing ranges are part of multi-purpose range complexes which also accommodate troop training maneuvers. Ammunition that might produce unexploded shells cannot be used at these ranges. Field weapons also require field maintenance and fueling, and there may be associated chemical spills. Soil displacement and destruction of vegetation from explosions can also be caused by infantry units firing anti-armor weapons and grenades.

Special ranges are set up for developing proficiency with various types of weaponry (for example special 155mm Howitzer or grenade launcher ranges), but these weapons are also used on open ranges. A recent survey conducted by the Army Office of the Director of Environmental Programs (ODEP) indicated a new artillery doctrine emphasizes more “hip shots” in the field for

better realism (AEPI, 1993). This change could broaden the impacts of these weapons. Based on interviews with other researchers on various aspects of Army land management and searches of the Defense Technical Information Center, as well as standard library resources, one concludes that there is a paucity of studies on the effect of long-term use of impact areas and amounts of sediment produced in drainage ways. The extent of heavy metal and chemical compounds leaching into surface and groundwater from unexploded ordnance and shell casings is also absent from the literature.

Engineer Training

Engineer training is another main cause of soil displacement. Engineers are responsible for fortifications, bridges, minefields, demolition, and construction. Construction is one of the leading causes of nonpoint source runoff in the country (USEPA, 1992), and road and building construction sites on training lands are additional sources of NPSP. Army training uses both fixed and pontoon bridges. Pontoon Bridges can lead to serious riparian damage at their entry and exit points. Engineers also operate heavy tracked equipment which can have particularly damaging effects on the ground surface.

Additional Impacts

Bivouac training and wheeled vehicles also create disturbances and have potential for nonpoint source pollution. Stream water may be used for showering and laundering; and, overuse of riparian areas can impact vegetative cover and shoreline erosion. Airborne unit drops can also create extensive disturbances to soil and vegetation as heavy machinery and soldiers land and mobilize. Chapter 5 discusses in more detail Fort Bragg's experiences with drop zones.

Additional Uses of Training Lands Contributing to NPSP

Besides Army combat training, many other activities on Army training lands can contribute to nonpoint source pollution. Chief among these are leased crop agriculture, leased grazing, timber production, and runoff from maintenance areas, parking lots, and industrial areas. These uses contribute impacts from access roads, harvesting practices, and lack of re-vegetation programs. Remote area and installation roads may generate very high levels of sedimentation in some areas. Chapter 5 describes this problem at Fort Bragg. Installations also use large bare-earth ditches as firebreaks (e.g. Fort Bragg and Fort Campbell) which can lead to extensive soil loss. Many of the agricultural land uses are leased; and, if sedimentation must be reduced, removing these uses may be one way to achieve it. A problem with eliminating these leases is that revenues from land use leases often help fund environmental projects, as well as contribute to the local economy. Unless the budget is reprogrammed to compensate for such losses, removing the uses will reduce funding to operate environmental programs.

The full extent of NPSP originating from Army installations is unknown, however, many BMPs are believed to effectively stop and prevent many forms of NPSP. Many of these have been published by the EPA (USEPA, 1993) and also in a 1993 USACERL Technical Report (Scholze and McNeilly, 1993). The next chapter describes efforts the Army has made to address NPSP and erosion issues and to reduce and manage the water quality impacts of training activities.

CHAPTER 2
ARMY EFFORTS TO REDUCE COMBAT TRAINING NPSP

The Army considers maintenance of realistic training facilities essential to the training mission and realizes the need to conserve and rehabilitate training land (HQDA, 1991). The National Environmental Policy Act (NEPA) has required the Army to consider environmental impacts from training activities since 1970. Under NEPA regulations, Army military training, as a set, is considered to be a Major Action Significantly Affecting the Quality of the Human Environment. Existing Army training land management includes management for erosion control, rehabilitation from heavy use, wildlife and endangered species habitats, groundwater contamination, and noise. This chapter will examine land management efforts already in place as an initial step in evaluating the impact of various potential regulatory restrictions.

Installation Land Management

Each installation maintains land use information required by Army regulations (AR 210-10 and AR 210-20) including the location of the installation within the region, airfield maps, installation land use maps displaying all uses, and utility and stormwater drainage maps. Training areas are managed by range control, environmental, and engineering sections at the installation. Range control maintains catalogs on exact locations of ranges, facilities, and training areas as well as locations of firing points, firing lines, targets, and types and quantities of ammunition fired into impact areas. Training activities are ruled by range regulations which determine how activities on the ranges should be conducted. These may include instructions for tanks to stay on designated trails and safety precautions concerning objects in drop zones. In the past, training area use was determined by trainers selecting the area they wanted to use and notifying the range control office for scheduling. The range control office now has a more interactive role and examines the condition and capacity of that area to support the types of maneuvers proposed. They include land condition in assigning land for training. The Army's Integrated Training Area Management (ITAM) program assists land managers in these decisions.

ITAM and Conservation Efforts

ITAM balances training and conservation needs. The program supports land management decisions with four main elements. The Army Environmental Center (AEC, 1993) describes them as follows:

a. Land Condition Trend Analysis (LCTA) provides for the inventory and monitoring of natural resources to document their condition, and to assess the ability of the land to withstand the impacts of training and testing.

b. Environmental Awareness provides for the education of officers and enlisted soldiers to comply with environmental laws and regulation, and to promote the wise use of training and testing lands.

c. Land Rehabilitation and Maintenance (LRAM) enhances training and testing realism by providing re-vegetation and erosion control to restore the land.

d. Training Requirements Integration optimizes land use by integrating the mission requirements with the capacity of the land to support the training or testing.

These efforts have focused on land conservation but also lend themselves to pollution prevention and identification of problem activities and areas giving rise to nonpoint source pollution. One key component of the ITAM program is the Geographic Resource Analysis Support System (GRASS), a computer based geographical information system (GIS) developed by the Army Corps of Engineers. GRASS enables land managers to track and visualize land uses and quickly evaluate land management options for particular areas. It also processes information on land condition and can readily illustrate areas with high potential for nonpoint source pollution. To date, GRASS has been used mostly in resource management and engineering; ITAM brings GRASS into greater use by trainers in their planning of activities. GRASS is partly or wholly in use at over 50 Army installations, many of which are also using ITAM (many of these installations are included in Appendix A).

The LCTA component of ITAM uses plant, wildlife, and permanent plot inventories to evaluate and monitor the condition of training lands over time. It is intended to form a baseline to scientifically determine the amount of usable lands and the carrying capacities of those lands. Once baseline information has been fully developed for a site it also helps determine the impact of various land use activities. Land managers select representative LCTA plots throughout the installation and training areas and monitor them for changes in several categories: types and amounts of vegetation and groundcover, soil condition, soil-vegetation-wildlife relationships, species presence, and endangered species. These present an overall picture of the areas' condition and enable rational decisions on land use allocation and land management priority. LCTA and ITAM development is an ongoing process. Current efforts focus on putting the systems in place and establishing communication networks among the system users. Over 50 installations currently participate in LCTA programs, at various levels of intensity.

Erosion Control and Management Plans

Erosion control management plans (ECMPs) are a part of ITAM's land rehabilitation program. Vachta and Riggins (1990) provide a planning procedure for installations to identify problems, assess needs and select technology. The plans include a 5-step process (Vachta and Riggins, 1990: p 12):

Step 1. Conduct preliminary site assessment for compiling an inventory on erosion project sites.

Step 2. Identify erosion-related natural factors.

Step 3. Examine site erosion conditions and contributing factors.

Step 4. Assess erosion control needs.

Step 5. Estimate costs for erosion control solution and resource requirements.

Some installations had their own plans in place prior to release of the guidance. Fort McCoy, Wisconsin implemented their Training Area Recovery Plan (TARP). Development of an eroded and damaged site inventory is an integral part of erosion control (Vachta and Hutchinson, 1990). Erosion areas can be identified through a site inspection or through the use of satellite spot imagery (Warren et al., 1989, Warren et al., 1993).

Vachta and Hutchinson (1990) also recommend using a combination of on-site controls and off-site containment programs for disturbing activities such as engineer demolition areas. Scholze and McNeilly (1993) also recommend BMPs that will aid installations in developing erosion control plans; these reflect the changing needs of each installation. USEPA (1993) also includes a comprehensive and useful collection of BMPs that could prove useful for erosion control plans.

ITAM Use and Implementation

ITAM requires specialized training to operate and involves some start-up costs for computer and monitoring equipment and training. Some of the installations that have the system are not able to use it because of personnel shortages. Respondents to an ODEP survey of environmental issues facing installations indicated funding ITAM programs would be one of their top priorities if more money were available to them (AEPI, 1993). Their first priority would be to add more personnel. Another problem is that most ITAM and LCTA programs are in their initial baseline information gathering stages and cannot yet provide the information on trends necessary to give a complete picture of geographic information. Yet another difficulty in implementation is that training and natural resource sections do not yet fully coordinate their activities. Even so, ITAM is a positive step for land management efforts and might be precisely the type of program required by states under a new Clean Water Act.

Department of the Army Chesapeake Bay Initiative

In 1990, the Department of Defense (DoD) signed a cooperative agreement with EPA setting goals and objectives for DoD facilities in the Chesapeake Bay watershed. This watershed covers six states and 64,000 square miles; the Army manages 21 active installations and over 215,000 acres within this area (AEO, 1991). The Army's Chesapeake Bay Initiative began by assessing the water quality impacts of each installation and assigning them to impact categories. Installation plans to mitigate water quality impacts include erosion and sedimentation control plans and BMPs for nutrient reduction. Improved wastewater treatment, stormwater management, and management for underground storage tanks and hazardous materials make up the bulk of the plans (AEO, 1991), but erosion control plans are also important components.

Summary

The Army is taking steps to monitor and mitigate the impacts of Army combat training as part of their environmental ethic, the result of regulations and the need to preserve land for future exercises. Participation in land management activities is phasing in over time, and initial efforts focus on severely impacted installations, installations important to Army training, and installations in states with tight regulatory controls. More programs will undoubtedly follow. An AEPI survey of installations' erosion and related land management activities now in progress intends to gather information about each installation's erosion control planning in order to develop a complete picture of the extent of their application. Such information is currently not routinely reported by installations. Appendix A includes limited information on installation NPSP control efforts.

CHAPTER 3
NONPOINT SOURCE POLLUTION CONTROL REGULATIONS

The Federal Water Pollution Control Act (FWPCA) of 1972, later retitled the Clean Water Act (33 U.S.C.A. 1251 et seq), first defined nonpoint source pollution. As stated in the introduction of this report, NPSP is essentially pollution from diffuse origins carried to water bodies predominantly by stormwater runoff. Under the 1972 act, states were to address nonpoint source pollution according to provisions in section 208. This called for states to survey their waters to determine which were the most severely impacted by nonpoint source pollution and to develop area-wide plans to mitigate the pollution. The 1987 Water Quality Act required states to submit nonpoint source control plans under section 319. Most recently, the Coastal Zone Area Reauthorization Act (CZARA) of 1990 required states to develop enforceable plans for NPSP control in coastal areas. Some states have now passed laws regulating activities that contribute to nonpoint source pollution. This chapter examines current federal, state, and military legislation and regulations pertaining to nonpoint source pollution control.

FEDERAL LEGISLATION

Clean Water Act

The Clean Water Act (33 U.S.C.A. § 1251 et seq.) does not directly address nonpoint sources of pollution at federal facilities, but it does direct the states to develop nonpoint source pollution abatement programs for problem watersheds, some of which may include Army installations. Several nonpoint type sources of pollution such as stormwater treatment and runoff from industrial sites are classified as point sources and are subject to NPDES permitting required in section 402 of CWA. These sources include discharges from water treatment works, animal wastes, and industrial nonpoint sources from maintenance and loading areas (40 CFR 122 - 124). Most diffuse sources are difficult to regulate because of the problems associated with identifying responsible parties and monitoring enforcement of those activities. Diffuse sources are not subject to NPDES permits.

Section 313 of the Clean Water Act requires federal facilities to comply with all provisions of the Act, but the strength of the requirement is debated between federal facilities and state regulators. *DOE v. Ohio* (118 L.Ed. 255 (1992)) established that although federal facilities are to comply with the CWA, they are not subject to penalties. Federal facilities do not have to pay penalties for CWA violations, and threat of punitive damages cannot be used as incentives to bring federal facilities into compliance. New legislation is quite likely (see discussions in latter part of Chapter 4) to change this situation by clarifying federal compliance under section 313.

The first attempts to address nonpoint source pollution came in section 208 of the 1972 Clean Water Act. Section 208 provided federal grants for states to identify point and nonpoint sources of pollution in area-wide stormwater treatment management plans and to develop procedures and methods to control them. The area-wide plans were to be developed for areas within the state with substantial water quality control problems. At the time neither EPA nor local governments had much experience relating land use to water quality, and the Soil Conservation Service was authorized to experiment with and develop BMPs for agricultural nonpoint sources. EPA also initiated the National Urban Runoff Program to study the impact of urban runoff on water quality. Generally, point sources were much easier to identify and control, and even though many section 208 plans were completed, nonpoint source pollution remained a problem.

In light of previous failures to achieve water quality improvements, the 1987 amendments to the Clean Water Act added sections 319 and 320. Section 319 requires states to develop plans for the control of nonpoint sources. A state was to identify waters within the state which could not be expected to attain water quality goals, identify nonpoint sources adding significant pollution to each portion of the waters, and describe the process for identifying control measures. Section 319 plans were also to identify and describe state and local programs for controlling the pollution from nonpoint sources for each portion of the affected waters (CWA §319 (a)(1)).

States were required to submit their plans to EPA for approval and to report on their progress each year. They were also to identify programs to implement their plans, schedules for implementing BMPs, identify additional funding sources for plan implementation, and provide a water quality review of federally assisted projects, to ensure consistency with the management plan (CWA §319 (b)). Plans included identification of the predominant nonpoint sources in the state. By 1990, all 50 states had at least partially approved plans covering agriculture, mining, construction, silviculture, land disposal, hydrological changes, and urban runoff (USEPA, 1992: p 33). States failing to submit approved plans were denied federal money for nonpoint source plan development allocated under section 319(h). State programs are briefly described in Appendix A.

Addition of Section 320 to the Clean Water Act to established a National Estuary Program. Initially, it identified 12 major estuaries for demonstration of watershed type planning efforts. Watershed plans for these estuaries, which include Chesapeake Bay, address nonpoint sources of pollution. Projects built with federal assistance within these watersheds must comply with the estuary plans. The Army's Chesapeake Bay Initiative illustrates Army participation in this program (AEO, 1991). There are currently 21 major estuary programs (USEPA, 1994).

The current reauthorization efforts for the Clean Water Act include proposals to strengthen section 319. Water Quality 2000 (WEF 1992), the Natural Resources Council (Cameron, 1993) and President Clinton's administration (USEPA, 1994) all propose requiring states to develop enforceable plans and that EPA be authorized to create and enforce plans for states failing to do so. These suggestions are discussed in greater detail in chapter 4.

Coastal Zone Area Reauthorization Act (CZARA)

The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C.A. §1451 et seq.) established a voluntary program for states to protect and manage coastal resources. Under this act, state

programs were to “protect and manage important coastal resources, including wetlands, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitats” (USEPA, 1993: p 1-3). Congress enacted the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) “to enhance the effectiveness of the Coastal Zone Management of 1972 by increasing our understanding of the coastal environmental and expanding the ability of State coastal zone management programs to address coastal environmental problems” (section 6202(b)).

CZARA section 6217 (16 U.S.C 1455b) requires states to develop enforceable nonpoint source control plans for coastal areas. In order to receive federal approval, states had to develop programs to control land and water use, and coastal development programs had to be enforceable. EPA has no authority to enforce this requirement or develop plans for negligent states. States are to conform to these minimum standards for management. CZARA also redefines BMPs to be "greatest degree of pollution reduction achievable through the application of the best available nonpoint pollution control practices..." (§6217(g)(5)). This is much stronger wording than "maximum extent practicable" standard for BMPs under CWA’s section 319. CZARA also required EPA to produce guidance for coastal zone area management that is to contain a comprehensive description of nonpoint source pollution management practices (USEPA, 1993).

Other Federal Laws

Several additional federal laws overlap into nonpoint source pollution control and management.

National Environmental Policy Act (NEPA)

The National Environmental Policy Act (42 U.S.C.A. §4321 et seq.) requires environmental assessments for all federal activities with a potential impact on the environment. This includes Army training actions.

The Food Security Act of 1985 (FSA)

This act (16 U.S.C. 3830 et seq.), amended by the 1990 Farm Bill (the Food, Agricultural, Conservation, and Trade Act of 1990 (FACTA)) compensates farmers for setting aside marginal lands for conservation.

Surface Mining Control and Reclamation Act (SMCRA)

SMCRA (30 U.S.C.A § 1242 et seq.) requires mine runoff to meet point source discharge criteria and established abandoned mine reclamation programs.

Resource Conservation and Recovery Act (RCRA)

RCRA (42 U.S.C.A §6901 et seq.) requires development of spill control contingency plans and hazardous waste management.

Comprehensive Environmental Recovery and Cleanup Liability Act (CERCLA)

CERCLA (42 U.S.C.A §9601 et seq) requires reporting and cleanup of hazardous waste sites, including spills.

State Legislation and Regulations

The Clean Water Act directs states to develop regulations for water quality control. As part of section 319 reporting requirements, 46 states indicated they have regulations in place to address nonpoint source pollution (USEPA, 1992:p 39). However, most of the regulations address agriculture, mining and land disposal of wastes. Many of the sources are controlled as point sources through NPDES permits or state disposal and hazardous waste laws — a large share of regulations reported as addressing nonpoint source pollution were actually designed to address point source discharge (USEPA, 1992:p 39). Additionally, 20 of the states identifying regulatory programs made no mention of enforcement.

By 1990, EPA had fully approved 42 state and territorial nonpoint source control programs and partially approved 12 (USEPA, 1992). Even so, there are no minimum federal standards for these programs, and states are not required to enforce their plans, which vary in depth. Appendix A includes a representation of state 319 plans condensed from the USEPA (1992) report and state regulations. State nonpoint source pollution control measures continue to evolve with time, but several states clearly lead in control programs. Regional, geological and climate differences partly account for some states giving NPSP less priority than others.

Many of the state programs developed to specifically address nonpoint source pollution emphasize permitting and BMP requirements for construction, agriculture, mining, and forestry activities. It is difficult to determine just where land disturbances from Army training activities fit into state regulations. Installations are responding to varied state rules. Fort Bragg, North Carolina, implemented maneuver restrictions and BMPs because of unacceptable levels of silt in local streams, and Fort McCoy, Wisconsin, adjusted artillery firing points away from water bodies because of local concern for fish habitat effects. State requirements tie directly to state water quality standards, which also vary. Each state has developed water quality standards and the extent of nonpoint source pollution control can depend on the condition of the receiving waterbody and the standards in that state.

Military Regulations

Army policy supports nonpoint source pollution control and ecosystem management. Army Regulation(AR) 200-1 section 3-2 (f) and (g) specifically require the Army to: “[c]ontrol or

eliminate runoff and erosion through sound vegetative and land management practices," and "[c]onsider NPSP abatement in all construction, installation operation, and land management plans and activities." The Army is also to demonstrate leadership in the goal of zero discharge, and cooperate with governmental authorities on water pollution control plans.

Range regulations at specific installations guide operation of vehicles and activities throughout training ranges. These include use restrictions and management practices that affect NPSP. For example, when moving between locations, tracked vehicles must stay on designated vehicle paths. Regulations vary from one installation to another.

Summary

Nonpoint source pollution has been regulated for over 20 years, yet it is the leading cause of impairment to the nation's water bodies (USEPA, 1992). Since passage of the FWPCA in 1972, watershed and area-wide approaches and the use of BMPs have been heralded as the preferred method of containing NPSP. States determine their own water quality standards and regulations for pollution control. Different priorities between states have led to inconsistent nonpoint source pollution control mechanisms — some are very strict on NPSP and land use management practices and others very lax. Control in most states is through voluntary management measures by landowners. A new Clean Water Act is likely (see discussions in latter part of Chapter 4) to reduce some of the interstate disparity. The next chapter discusses some of the provisions under consideration for the current Clean Water Act reauthorization attempt, and the chapter following will relate these proposals to Army training.

CHAPTER 4
REGULATORY AND LEGISLATIVE BILLS AND TRENDS

The current Clean Water Act reauthorization bills and President Clinton's Administration's Clean Water Act proposal have a much heavier emphasis on nonpoint source pollution control than any previous federal water legislation. In addition to tightening controls for nonpoint source pollution, these bills propose initiating watershed management programs. Testimony of groups interested in water regulatory reform also provides insight into current public and leading environmentalist opinions that may help shape future water legislation. This chapter examines CWA reauthorization proposals to determine potential directions. The impact of these directions on Army combat training is discussed in the next chapter.

S. 2093: The Water Pollution Prevention and Control Act of 1994

Introduced as S. 1114, by Senators John Chafee and Max Baucus, this bill was the first comprehensive bill in the 103rd Congress to amend and reauthorize the Clean Water Act. The bill emphasizes improving nonpoint source pollution control and implementing watershed management programs through amendments to sections 305 and 319 and adding a new section 321. The Senate Environment and Public Works Committee approved an amended S. 1114 on February 25, 1994, and Senator Baucus reintroduced the bill with revisions as S. 2093.

Specifically, S. 2093 would require states to submit revised section 319 NPSP management plans that must be implemented within 3 years of approval and must be enforceable by the states. If a state fails to submit a revised plan within 2 years of the passage of the bill, the EPA will develop its own plan for the area with enforceable minimum standards for nonpoint source pollution control. This is perhaps the most significant change in the nonpoint source legislation. The bill also requires EPA to publish nonpoint source implementation and management guidance for states similar to the publication required for coastal areas under CZARA (USEPA, Jan 1993). As introduced, the bill requires states to implement management measures for all existing and new nonpoint pollution sources in watersheds of "impaired" waters and for all new nonpoint pollution sources in all watersheds of the state. However, as a compromise on the February 25th markup, management practices would not be required for new NPSP in all watersheds in the state. Management measures are defined as:

> economically achievable measures for the control of the addition of pollutants from existing sources and new sources (as defined in subsection (b)(6)) that reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives. (S. 1114, Sec. 304 (a)(2))

S. 1114 enables specific site plans to substitute for broad area requirements created under a revised section 319. These plans must address implementation schedule and program

maintenance and provide for periodic assessment of implementation. The site plans terminate after five years. Agricultural users who have approved conservation plans under the 1985 Food Security Act (16 U.S.C. 3830 et seq.) can initially substitute them as their site plans.

The Water Pollution Prevention and Control Act of 1993 (S. 1114) also creates section 321 in the CWA to "...encourage comprehensive watershed management in maintaining and enhancing water quality" (proposed language for CWA §321(a)(2)). This section would enable states to designate watershed management units. To qualify for designation, states must identify waters within these units which do not meet sedimentation standards, are outstanding resources, or are sensitive habitat areas. The management units, to the extent practicable, should include land area occupied by all sources of pollution causing or contributing to impairment. A new section 319 would also require a listing of every point and nonpoint source of pollution contributing to impaired waters (proposed §319(a)(1)(E)). States would also supply water quality monitoring data on at least five-year intervals.

Once identified and delineated, states are encouraged to develop watershed management plans to protect or improve water quality in management units. EPA must approve watershed management plans, but once approved, the states are able to approve site plans within each management unit. Section 321 also requires federal agency activities to be consistent with approved watershed plans. The following proposed presidential exemption is especially significant to the Army training program:

> …the President may exempt a Federal agency activity from the requirements of a plan…if the President determines that it is in the paramount interest of the United States to exempt the Federal agency. (S. 1114, §302, proposed CWA §321(h)(2)(B))

Subject to the President's determination, this provision could allow installations to continue with combat training exercises even if they affect impaired waters. However, it is not likely that the President would choose a blanket exemption for Army training or for any particular aspect of a training program. (In reality, Presidents have been extraordinarily frugal in the use of such waivers under any environmental law.)

Barring that possible exemption, S. 2093 would require federal agencies to manage NPSP through, at minimum, adopting EPA promulgated management practices or developing site-specific water quality plans. New and existing contracts and leases for activities on federal lands would also include requirements for management measures in accordance with state programs (S. 2093, §302(j)).

This bill pushes states towards tighter control of nonpoint source pollution; but, subject to certain minimum standards, leaves most of the implementation decision power with the states. States choosing to adopt watershed management practices have additional flexibility in addressing NPSP by managing sources as appropriate to each watershed. Watershed management also allows more balance in managing point and nonpoint sources of pollution. It is probably that S. 2093 will not reach the full Senate during this (1994) session of Congress. However, its current form provides some indication of the general direction future proposals will take.

President Clinton's Clean Water Initiative

Modeled after S. 1114, the Clean Water Initiative would also strengthen section 319 of CWA and implement watershed management programs. Clinton's plan calls for existing NPSP programs to be "upgraded and strengthened to implement best available management measures for nonpoint sources causing or contributing to water quality impairments or threatening such impairments, within seven and one-half years of enactment of legislation reauthorizing the CWA" (USEPA, 1994:p44). Additionally, state programs must include enforcement authorities to ensure implementation of management measures. If states fail to enforce these measures, federal authorities could enforce federal standards. It provides for EPA to establish minimum standards for states not adopting adequate plans and for section 319 funds to be withheld from those states (USEPA, 1994).

Clinton's plan makes a number of specific recommendations for strengthening section 319:

- Require states to conduct a comprehensive inventory of water bodies and watersheds threatened by nonpoint source pollution within 2 years of passage and every 5 years thereafter,
- Direct EPA to issue national minimum program and management measure guidance, as basis for expanding state NPSP management programs,
- Provide greater development flexibility in nonpoint source management plans for states undertaking strong watershed management proposals,
- Allow states to gradually phase from voluntary to authority-enforced implementation mechanisms for nonpoint source management programs,
- Authorize EPA to establish enforceable minimum NPSP controls for states that have not done so,
- Allow citizens to petition EPA to take enforcement action when a state fails to take timely and appropriate action,
- Develop mechanism for intra-watershed pollutant trading,
- Clarify requirements for federal entities to be subject to the same management measures as non-federal entities within the same watersheds, and
- Require states to identify federal lands and activities that are inconsistent with state section 319 NPSP management programs.

The President's plan recommends a new provision establishing broader adoption of integrated environmental management concepts beginning with development of statewide comprehensive watershed management programs (USEPA, 1994). These programs would be subject to EPA approval and oversight and would benefit from the assistance of other federal agencies. States would coordinate and oversee the activities of the individual watershed management entities. The plan outlines several detailed recommendations on watershed boundary delineation, prioritization, administration, organization, and other facets. It also recommends that watershed management objectives, including water quality standards, be completed within 15 years of watershed plan enactment. The recommended approach is to use a tiered system for scheduling implementation with the highest priority watersheds addressed first. This plan promotes wide intergovernmental coordination and public participation in the watershed management process. It also endorses a market-based approach to trading pollution credits as has been implemented for Clean Air Act requirements. Nutrient trading in particular is mentioned as a way to improve the condition in 943 water-quality limited water bodies (USEPA, 1994). It is conceivable that the Army could earn money towards environmental programs through these trades.

While stressing the importance of a watershed approach, the Clinton plan does not require states to adopt it. No deadlines are recommended for plan submission. The plan suggests no specific or consistent method of identifying or defining watersheds. States have the key role in prioritizing watersheds and approving watershed management plans. In some areas, multi-state entities can augment the process, but the implementation remains with the state, subject to guidance from federal agencies. Clinton's proposal would also provide guidelines on market-based approaches to controlling pollution within a watershed, incorporate wetland permitting into watershed management, and create comprehensive state inventories of all endangered or threatened waters. Clinton's plan does outline minimum requirements for an approvable watershed management program which includes identification and integration of existing regulations affecting water quality and management.

Federal facilities are expected to participate in watershed management programs and attempt to streamline operations. They are also expected to contribute non-water quality considerations and national interests in formulating environmental objectives — it is not clear just what they would contribute. In areas without approved programs, "[f]ederal agencies should use a watershed approach to the maximum extent practicable in implementing [f]ederal programs" (USEPA, 1994: p 65). The plan also calls for an amendment of section 313 to clearly waive sovereign immunity for federal facilities (USEPA, 1994:p 82). Another recommendation would earmark all money collected by states for federal facility penalties for environmental programs and projects in that state (USEPA, 1994:p84). Success of the management programs would be measured based on environmental conditions, programmatic changes, and changes in risks to public health and living resources. Additional recommendations include streamlining six separate grant-reporting requirements into a single report for "multi-purpose" state water grants. Inventory , ranking, planning and reporting requirements of eight separate sections of the CWA, plus other programs like CZARA requirements, would also condense into one watershed process. This effort would link nonpoint source pollution with other sources on Army installations and force each facility and the watershed(s) within which it lies to examine the problem comprehensively.

House Reauthorization Bills

Other bills in the House of Representatives may change the Senate version of the CWA somewhat. H.R. 2543, The Nonpoint Source Water Pollution Prevention Act of 1993 mirrors S. 1114 quite closely with provisions for a strengthened section 319 and the addition of watershed management programs. This would require landowners in target watersheds to develop and implement site-level NPSP control programs and for the state to enforce them. Section 201 of this bill also proposes developing a special federal program under direct control of the President to control and eliminate nonpoint sources of pollution on federal lands. The management measures must be adequate to attain full restoration and protection of affected watershed within 8 years of the issuance of regulations. This bill would also require all existing licenses, permits, or leases be revised to comply with new regulations. Progress would be monitored by the Director of the Geological Survey. No action has been taken on this bill and none is expected.

The leading bill in the House of Representatives sponsored by House Public Works and Transportation Committee Chairman Norman Mineta (H.R. 3948) would include a specific provision allowing the president to exempt equipment, vehicles, property, etc., that are "uniquely military in nature" (§310(5)(D)). This bill, introduced March 7, 1994 and modified April 21, also authorizes states to develop watershed protection plans and would require states to identify nonpoint sources of groundwater pollution as well as surface water. In addition, H.R 3948 would have each state submit a NPSP management program to EPA within 18 months of enactment and every 5 years thereafter. EPA is authorized to prepare management programs for those states failing to submit. This bill makes no specific mention of controlling NPSP on federal lands as do the Senate version and the administration's proposal. As of mid-August, H.R. 3948 is still awaiting action.

What the Interest Groups Would Like to See

Several groups presented testimony at the CWA reauthorization hearings during the summer of 1993. They espouse two main views. There is broad consensus that NPSP should be addressed, but the extent of restriction and enforcement is the area of contention. Generally, and not surprisingly, environmental groups support strengthened and enforceable state requirements and mandatory implementation of watershed management practices to address nonpoint source pollution control. State and agricultural industry representatives favor state discretion, voluntary programs and no federal enforcement role.

More Restrictive CWA

One of the strongest statements supporting strict control of NPSP came from the Diane Cameron of the Natural Resources Defense Council (NRDC) and leader for polluted runoff issues for the Clean Water Network, a broad-based coalition of environmental groups (BNA, May 1994). The NRDC would like to see all landowners and operators in impaired watersheds required to implement best management practices (Cameron, 1993). They also promote a larger role for "citizen watch" groups and think some entity other than state government should be responsible for identifying which areas in the state are impaired. NRDC also wants states to develop

meaningful water quality standards — biological and habitat protection criteria and nutrient and seasonal sediment loadings should all be included in identifying impaired waters. These criteria should be addressed in NPSP control programs. The key ingredients of NRDC's position are whole-watershed restoration, mandatory site-level water quality planning in target watersheds, and citizen water quality monitoring efforts.

Less Restrictive CWA

Agricultural groups and large land users are concerned about increased restriction of their land uses. The American Forest and Paper Association suggests that foresters have been practicing BMPs for years and that the low percentage of NPSP coming from forestry activities supports this. In a statement before the Senate Clean Water, Fisheries, and Wildlife hearings on S. 1114, they urged Congress to "move forward with extreme caution in any nonpoint legislation, to consider what approaches are working well now, and to avoid a federal regulatory approach that will result in land use planning" (Olszewski, 1993). The National Cattleman's Association shared this opinion on cautious advances in the CWA (Genho, 1993). In particular they are concerned with changing water quality standards, federal guidance that fails to account for regional differences, expansion in the designation of priority waters, and EPA approved targeted watershed plans.

Consensus View

Controlling runoff from rural and urban lands is one of the top priorities identified by Water Quality 2000, a multi-disciplinary group of water professionals including engineers, regulators, biologists, agricultural interests, and industrial representatives. The Water Environment Federation (WEF and formerly the Water Pollution Control Federation) organized Water Quality 2000 in 1989 to "develop and implement an integrated policy for the nation to protect and enhance water quality that supports society living in harmony with healthy natural systems" (WEF, 1992). The results of their efforts represent a collective view of more than 80 public, private, and nonprofit organizations and over 200 individuals from multiple disciplines.

This consensus report recommends that congress authorize and fully fund a strengthened section 319. The new programs should be approved by EPA, enforceable, and include regional watershed authorities for implementation. Additionally, mandatory control measures should be required in targeted watersheds, and individual landowners outside of target areas should have information about voluntary BMPs.

Remote Possibilities for CWA Bill Provisions

Several possible outcomes of nonpoint source pollution control and prevention come to mind; some of them are only distant or remote possibilities. These would have varying degrees of impact on Army training and the ability of the Army to complete its training mission. Even though their chances of becoming reality are remote, the impacts of these possibilities might at least be considered.

- Tracked vehicle maneuvers become limited to wide turns only — locked-track turns are banned. This would affect armored units' ability to react quickly and allow "realistic"

battle practice in simulators only. Although very unlikely for entire installations, this is plausible for riparian areas.

- Agricultural, grazing, and/or silvicultural practices are banned on Army installations to reduce nonpoint source pollution — this may affect the local economy by removing jobs and remove lease income used to fund environmental programs. It might also reduce sedimentation enough to allow other activities to continue.

- Tracked vehicles are prohibited from crossing streams or drainage ways except on bridges — this would further limit available training areas for tracked maneuvers.

- Artillery practice is banned because of impact on soil erosion and ecosystem destruction — this would lead to increased simulation use.

- Training simulators are improved to actually provide realistic combat training. This would enable troops to train realistically without extensive impact on the environment.

Anticipated Outcome of CWA Reauthorization Process

It is unlikely that any CWA reauthorization bill will get through Congress during this session (BNA, 22 July 1994). However, it is very likely that the bills will be reintroduced next year possibly as companions to Farm Bill reauthorization. The bills presented in this session are good indicators of what to expect, and strengthened nonpoint source pollution management programs were *not* one of the major sources of contention.

The Army should be prepared for a new CWA to encourage states to address nonpoint source pollution more strongly. Army managers should also be prepared for state watershed management plans which consider pollutant load management for both point and nonpoint sources. Federal facilities should expect to be subject to these plans.

The rest of this report explores the impacts of these changes on Army installations.

CHAPTER 5
IMPACT OF STATUTORY CHANGES ON ARMY TRAINING

The aim of this report is to predict how nonpoint source pollution control measures will affect Army training activities and what the Army might do to address the potential limitations. Research included contacting several installations to check the current impact of state nonpoint control programs and to get installation level reaction on how federal standards might affect their training activities. As expected, responses varied by region and current status of nonpoint source program. However, with the exception of Fort Irwin in the California desert, there was general consensus that states could affect training installations with tougher water quality restrictions. The transfer of that effect to training would vary from reducing maneuverability to affecting installation budgets, which would indirectly affect training actions. This chapter first presents case-study information from the survey installations. Then, based on survey responses and the information in Appendix A, summarizes the general impacts of federal standards on Army combat training.

Installation Survey

Environmental personnel at a sample of 6 installations in 7 states provided information regarding training restrictions imposed by water quality regulations in their states. Questions specifically addressed whether state nonpoint source regulations were currently affecting them, how those regulations impacted training activities, and what they entailed. Installations were also asked how the imposition of federal minimum standards for land management practices would affect training. Table 5.1 summarizes their responses, and each is discussed briefly below.

Table 5.1 Installation Responses

Installation	*NPSP Problems*	*Erosion Control Plans*	*State Regulation Issue*	*Impact from federal minimum standards*
Fort Bragg	yes	yes	yes	already strict
Fort Campbell	yes	limited	no	yes
Fort Drum	yes	no	no	yes
Fort Lewis	yes	yes	potentially	already strict
Fort Irwin	no	no	no	no
Fort McCoy	yes	yes	potentially	potentially

Fort Bragg, NC

Background

Fort Bragg is a Forces Command (FORSCOM) troop installation with major training capacity. It lies inland from North Carolina's coastal zone. The installation is partially wooded and very sandy and comprised of several separate watersheds. Fort Bragg has been the focus of several studies (Vachta, Dec 1990; Soluck, personal communication) due largely to water quality requirements imposed by the state of North Carolina. Fort Bragg developed a watershed planning approach to specifically address problems with stream water compliance. Areas contributing most of the sediment were identified using portable turbidity monitoring field equipment (Vachta, Dec 1990), but turbidity is perhaps an inappropriate measure for sedimentation impacts at Fort Bragg. The main problems are with streambed cover (Soluck, pers. comm.).

Interview Results

Drop zones, firebreaks, stream crossings and road runoff are Fort Bragg's biggest nonpoint source problems. Fort Bragg is home to airborne units that depend on drop zone practices for training. During training drops, troops, their equipment, and heavy machinery (including tracked vehicles) land in a drop zone, assemble, and drive off — this disturbs the soil. Soil at Fort Bragg is very sandy, and once disturbed has a difficult time reestablishing vegetation. For safety reasons, efforts to rehabilitate land have failed because no rigid fenceposts, signs, or barriers of any kind to restrict access are permitted in the drop zones. Fort Bragg also has over 600 miles of firebreaks and an extensive earthen road network. Storm runoff from these carries sand into streams (Lance, pers. comm.).

North Carolina has presented Fort Bragg with 7 notices of violation (NOVs) because of both failure to meet stream water turbidity levels and to practice BMPs. One regulation requires a certain percentage of all open space be covered with vegetation (see North Carolina in Appendix A), and the state is requiring Fort Bragg to comply with this regulation for its drop zones. Fines from the NOVs have not been enforced, but the installation has already spent several million dollars to fix erosion problems identified in the NOVs (Lance, pers. comm.).

Fort Campbell, KY

Background

Fort Campbell is located in both Kentucky and Tennessee. Both open and wooded terrain varies from level to steep sloped. As a large FORSCOM installation (over 100,000 total acres), Fort Campbell hosts many varied training activities including drop zones and tracked vehicle maneuvers. There are over 53 firing ranges, 24 additional training areas, and spaces for river fording and amphibious unit training. Fort Campbell has developed erosion control plans for its vehicle drop zone incorporating trainers in the design process (Vachta, Dec 1990).

Interview Results

Erosion is a problem at Fort Campbell, but neither Tennessee nor Kentucky has strong NPSP control requirements. Particular erosion problems stem from stream crossings and tracked vehicle maneuvers. Fort Campbell fosters a positive working relationship with both Tennessee and Kentucky regulators and they have come to demonstrate implementation of BMPs for controlling damage from stream crossings. The state of Tennessee requires aquatic resource permits for some stream activities, but they have not yet required them of Fort Campbell. The general impression of the water program manager is that increased state enforcement would cause some impact on training activities, but mostly in activity scheduling; he did not think they would be overly restrictive of actions (Sewel, pers. comm.).

Fort Drum, NY

Background

Fort Drum spreads over 107,000 acres in upstate New York and has varied topography with numerous lakes and marshes and mixed vegetation and soil types. Fort Drum is a FORSCOM installation and home to the 10th Light Infantry Division. It is also used extensively by National Guard and Reserve Component troops. Fort Drum is the only installation in the continental United States that has a suitable climate for large scale cold weather ground combat exercises (Goran, et al, 1983) and can get heavy tracked vehicle traffic as part of these exercises.

Interview Results

The state of New York does not require Fort Drum to implement any BMPs for surface water quality or conduct any monitoring. Fort Drum gets heavy tracked vehicle use, and has begun implementing an Integrated Training Area Management (ITAM) program. Tanks and tracked vehicles are supposed to stick to designated trails, but in practice they do not. Fort Drum's environmental coordinator believes that ITAM implementation will take care of any state requirements for improved NPSP control. But if the state imposed requirements before ITAM is fully operational it could cause problems for training activities (Moss, pers. comm.).

Fort Irwin, CA

Background

Fort Irwin is a FORSCOM installation located in the Mohave Desert. It has numerous mountain ranges and dry, silty, sandy gravel and silty gravel soils with sparse vegetation (Goran, et al, 1983). Even though rough terrain limits vehicle access to about 40 percent of the installation, Fort Irwin has approximately 470,000 acres for maneuvers and is designated as a National Training Center (NTC). The installation gets extensive cross-country traffic, and there are roughly 700 tracked vehicles in use.

Interview Results

Fort Irwin has little need for concern with surface water quality levels —the only surface water is in treatment ponds and ephemeral streams. Their main water concern is groundwater contamination and withdrawal. While rain in the desert can cause stormwater management problems with flash flooding, Fort Irwin currently faces no state or local government regulations concerning surface runoff and water quality. They do not envision that a strengthened CWA will affect this. Land managers there have found that resting land is not enough to rehabilitate it in the desert. Their preference is to continue to use damaged lands and to keep undisturbed lands intact (Quinones, pers. comm.).

Fort Lewis, WA

Background

Fort Lewis is a FORSCOM installation located in west-central Washington on a gently rolling glacial outwash plain. Close to 80 percent of the installation is covered in dense forest and there are scattered lakes and prairie areas. The Nisqually River divides the installation into northeastern and southwestern sectors. Fort Lewis gets heavy infantry use. Tracked vehicle use is mostly confined to the prairie areas because of accessibility problems (Goran et al. 1983). Yakima Firing Center is a sub-installation of Fort Lewis but located 150 miles east of the installation.

Interview Results

State requirements for NPSP control do not presently affect training activities, but this could change as local governments begin to administer their watershed control plans. Permits are required for all digging activities, and for major land-disturbing activities, like large-scale maneuvers. Installation range regulations require stream crossing at designated points and only setbacks from stream banks for activities.

Fort Lewis lies in three main watersheds. Both agricultural and urban users outside of Fort Lewis share these watersheds, and local government units have already approached Fort Lewis asking for assistance in establishing surface water monitoring stations (Crawford, pers. comm.). The suggestion arose that water levels have as much to do with aquatic life as water quality and that future regulatory emphasis in Washington State may be on maintaining certain water levels. This could restrict traffic in marsh areas during part of the year because of the fluctuation in water levels.

Fort McCoy, WI

Background

Fort McCoy is a FORSCOM installation with over 43,000 acres of training lands in western Wisconsin. Terrain at Fort McCoy varies from flat and gently rolling to high ridges and hills.

The soil is very sandy, and Fort McCoy has developed an erosion plan to reduce some negative effects of training activities. Their plan is based on identifying badly eroded areas, scheduling training away from these areas and promoting rehabilitative vegetation and BMPs.

Interview Results

Fort McCoy is in the process of implementing their Training Area Rehabilitation Plan (TARP). One of the biggest problems they have not been able to address is stream bank erosion within the artillery impact zone. The state of Wisconsin has requested them to reestablish vegetation along these banks, but because it is within an impact zone, working in the area is a safety hazard. Other problem areas are identified through field inventories. Areas found to release sediment directly into a stream are automatically given highest priority for rehabilitation. Nonpoint source pollution control regulations have not yet restricted the ability to conduct training, but increased state restriction could affect the impact zone use (Larson, pers. comm.).

Summary

As expected, these interviews illustrate a variety of regulatory impacts in different regions of the country and states. States choosing strict enforcement of their water quality standards can create significant difficulties for installations in those states. Installations in arid areas are much more concerned with groundwater impacts, and erosion control efforts under ITAM are not likely to address their needs. Even states like Wisconsin that have strong regulatory programs could further increase enforcement and tighten requirements.

Installations in all 50 states face restrictions from increased state water regulation. Installations in the states that have strong NPSP control programs already deal with control issues and probably have a good sense of the direction their regulators are heading. Installations in states with little or no control might see a greater impact on their activities if federal standards require states to identify and control problem NPSP areas.

NATIONAL IMPACT

The Appendix A matrix contains information on nonpoint source programs in each state, a general description of training activities in that state, and how those training activities might be affected if strict federal management practices are included as part of a CWA reauthorization. The greatest shock impact would be felt by installations with major training activities in states that have currently low levels of nonpoint source pollution control and enforcement, if those states were to develop stronger programs. The least impact would be noticed at installations in states already exercising strict sedimentation controls or with little Army training dependency.

For this analysis, the stringency level of state NPSP program was determined from regulations and assessments of state 319 programs submitted to EPA. This information appears in Appendix A, and additional state regulations are listed in Appendix B. States with class 1 programs have strong programs, and class 3 indicates a weak or voluntary-based program (Figure 5.1). (See Appendix A text for explanation of "class" designations.) Based on information gathered for this report, installations in 16 states have high potential to be affected by new federally imposed standards for NPSP control. Installations in eight states would have a moderate potential for

impact. And, for installations in 26 states, new federal regulations would only have low if any additional impact on training programs (Figure 5.2).

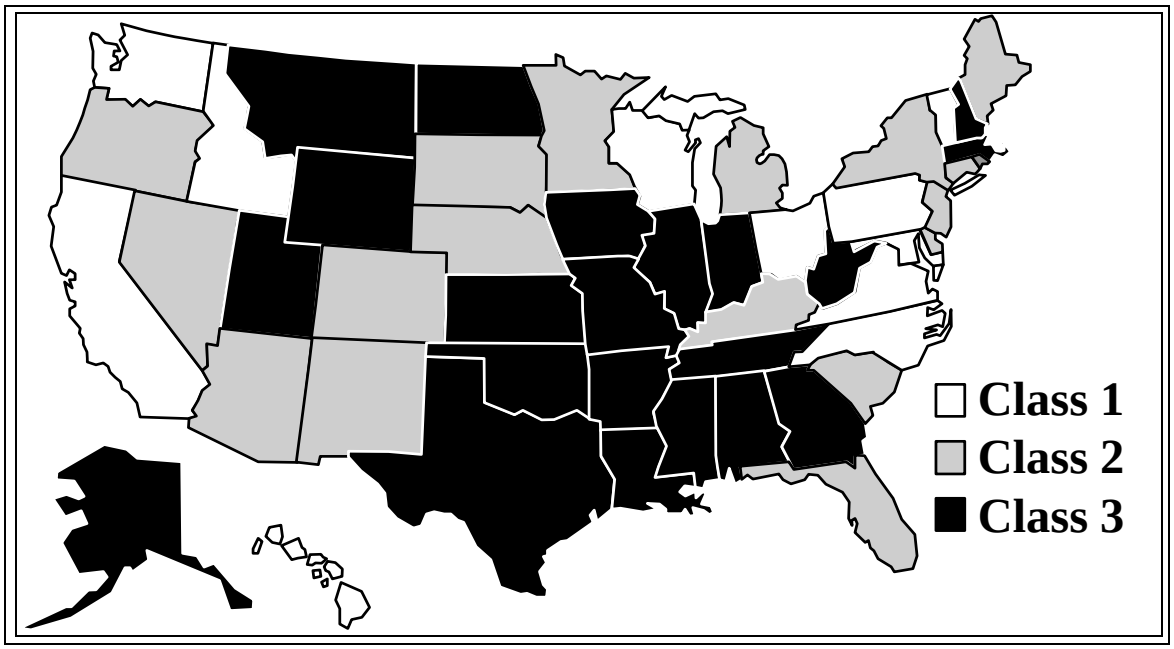

Figure 5.1 State Nonpoint Source Control Programs

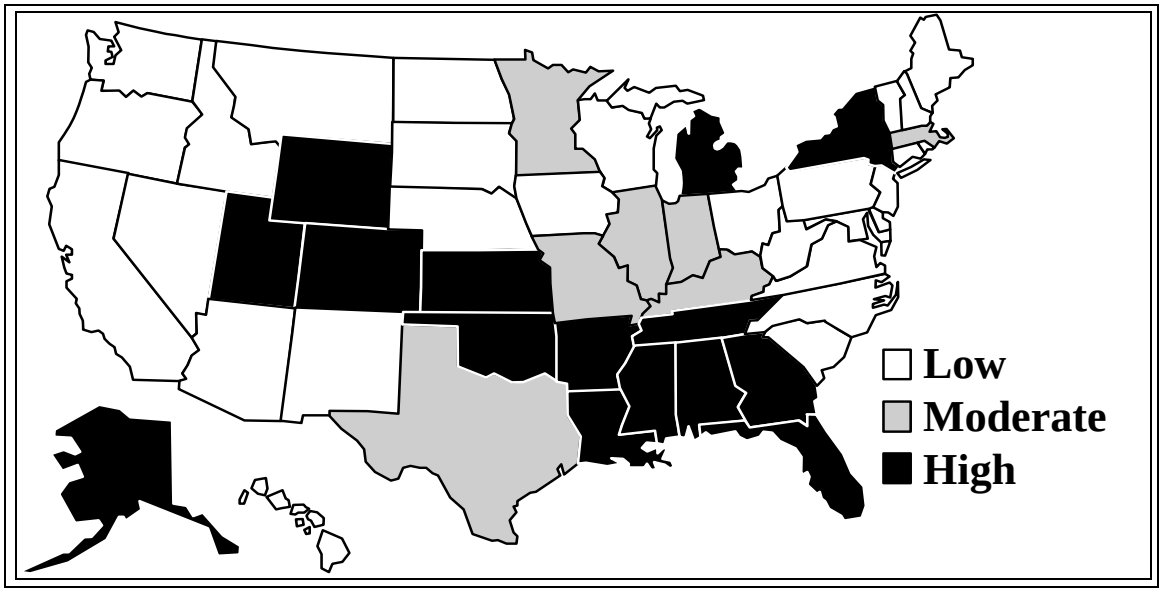

Figure 5.2 Potential NPSP Regulatory Impact Ratings

OUTLOOK FOR THE ARMY

The Army's main response to NPSP generated by combat training is the ITAM program. While still young, this program has great potential. Watershed approaches could prove a very effective means of controlling NPSP, but as Vachta (Dec 1990) points out, Army land managers face unique problems in attempting to close off parts of a watershed that might run right through a training maneuver area. Closing part of maneuver areas may prove to be too disruptive to training activities. However, it might happen that eventually states mandate control of erosion problems that impact water quality regardless of the land use. North Carolina is doing this now with Fort Bragg's drop zones. If North Carolina becomes the model for state programs the Army could see a significant increase in mandated NPSP control measures. In light of this, installations in the 16 states with a high potential to be impacted could benefit from increasing current efforts at NPSP identification, control and monitoring, as a means of surprise prevention.

OBSERVATIONS AND CONCLUSIONS

New federal legislation requiring states to establish a minimum level of nonpoint source control would reduce the amount of available training land, limit the type of training allowed, and add costs for rehabilitating damaged land at installations in several states. This would also force any water crossings into special crossing points or bridges and increase the priority for land rehabilitation programs in training land management. In most states, strict NPSP control actions are not currently required, but several states do have strong NPSP regulatory programs.

The Army already has several important land management efforts which help control nonpoint source pollution on combat training lands. Among these, the Integrated Training Area Management (ITAM) program is especially promising; however, it appears that a greater effort is needed to coordinate the results of environmental monitoring with training activity plans. Additional research to identify and describe nonpoint sources on training lands could help managers identify additional sources of pollution which, if removed, might allow for continued training use. Initial improvements in managing leased activities such as forest harvesting, row cropping, and grazing might reduce total nonpoint source pollution enough (as trade-offs) to meet water quality standards and allow training activities to continue with less restriction than if training lands receive the full focus.

Directed NPSP control measures will most likely be based on use of management practices rather than water quality levels for specific landowners. However, the Army is in a unique position to negotiate with state regulators because of the size of Army installations and the special activities involved in training; these activities will not fit into broad classifications for agricultural or construction management practices. If installations can demonstrate stream water quality sufficient to meet standards for those bodies, regulators might be convinced to waive some management practices to allow continued training in some sensitive training areas provided they are surrounded by grass or forest buffer strips to trap sediments. It is likely that riparian areas will require restrictive protection.

Additional research should also examine possible pollutant release from exploded and unexploded shells in impact zones to determine whether chemicals from these affect surface and groundwater quality; and if so, how. Such anticipatory research would place the Army in a position of knowledge power vis-à-vis regulators and advocacy groups that might go "fishing" for issues with no real basis. Also, applying pollution prevention concepts to controlling nonpoint source pollution could have a relatively quick impact on water quality recovery as opposed to land rehabilitation which can take many years to yield full benefits.

As information becomes more accessible via computerized geographic information systems (GISs), and as technology enables farmers to implement more precise control over agricultural chemicals and nutrient management, more of the pressure to protect impaired watersheds might fall on federal facilities. Similarly, watershed management units looking to improve water quality under their jurisdiction could find it is easier to require BMP compliance from a single large federal facility than from many small private farmers. Because of this possibility, it is important that Army representatives work closely with other land users in their respective watersheds to help them understand the efforts the military installations are undertaking and the resource constraints within which they operate.

The Army has three main options for dealing with nonpoint source pollution regulations:

1) Change nothing and wait for individual states to require and enforce new management practices.

- Continue degrading the same areas to minimize the spread of training impacts.
- Rely on the President to exercise authority to exempt training areas for national security purposes.

This is a reactive step that could make future land rehabilitation more difficult and costly.

2) Identify ways to reduce NPSP without greatly affecting training programs and begin implementing land management practices that will be compatible with new state requirements.

- Focus on improving installation programs in states identified in Appendix A and figure 5.2.
- Eliminate or reduce leased activities that produce NPSP from training lands.
- Increase efforts to implement comprehensive ITAM programs.

- Re-assign training activities on damaged lands to allow impacted areas to recover, and implement BMPs during the rest period.

This is a proactive step that could help engender regulator acceptance.

3) Make land rehabilitation and erosion protection a high priority for all installations and provide funds and manpower to achieve results.

- Increase staff and budget for environmental managers to address nonpoint source pollution issues
- Reassign all training activities to allow impacted areas to recover, and implement BMPs during the rest period.
- Conduct fewer training exercises.
- Increase efforts to develop alternative training methods that would rely more on simulation that actual maneuvering.

This is a proactive step with high costs and implications for a reduction in training.

Even if a new CWA were passed during the 1994 session, new requirements in states not already mandating management measures would not be enforced for several years. States currently requiring management practices, which will have clear authority to impose fines on federal facilities after a CWA reauthorization, might not have the luxury of waiting so long. Appendix A identifies states and installations that will face the greatest shock if states are required to develop and enforce NPSP control programs with minimum federal standards. Installations in states that already have strict NPSP controls are under pressure to improve land management now, and have a sense for how state regulators view training activities.

As a close to their report, WQ 2000 warns of a chief impediment to their National Agenda: "One of the pitfalls we must avoid is the tendency to believe that enactment of a new law (usually regulating someone else) will automatically solve the problem and allow us to go on with business as usual" (WEF, 1992). Their warning, intended for proponents of clean water, should be heeded by Army decision-makers. Eventually, the CWA could generate a large impact on training activities. The Army needs to consider this impact and plot a course that will enable continued training in a more tightly controlled environment.

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APPENDIX A

MATRIX: NONPOINT SOURCE REGULATION IMPACT ASSESSMENT

This matrix provides a somewhat subjective measure—though it was based as firmly as possible on objective information gathered during the study—of the impact that federally enforced minimum NPSP control regulations might have on Army combat training programs. States' program stringency class designations in the second column from the left are fairly easy to establish from the obvious existence or non-existence of defined state program elements. Potential impacts on installations expressed in the far right column are less precise; being the author's considered opinions formed from interviews and interpretation of objective information reviewed during the project. These are subject to changing local, installation management policies.

The relative levels of state NPSP control and restriction measures set the NPSP program categorization for the respective states. States with strong NPSP programs that actively enforce state controls have class 1 programs. Class 2 is assigned to states with strong programs that encourage, rather than require, NPSP controls. States less organized for NPSP regulation and control have class 3 programs. Potential impact for each major training installation was determined by comparing the current level of state NPSP regulation and control with training activities producing NPSP at the installations and the measures taken to control them.

Importance of the particular Army installation for training and the extent to which the installation practices NPSP control and abatement is compared to the state program class to determine the potential impact of federally enforced NPSP standards. The assumption implicit in the impact rating is that federal standards will require enforceable soil protection measures based on water quality impact. Installations in states currently having class 1 programs have a low potential to be affected by additional federal regulations because the state may have already met or surpassed eventual federal requirements. Some of these installations still conduct activities that produce nonpoint source pollution, and might face yet additional restriction from state regulators. The "low" ratings for these installations are shaded on the matrix because their futures are somewhat ambiguous. Installations in class 2 states face greater potential impacts depending on the extent of abatement activities already in place. Similarly, installations in class 3 states face a high potential impact from any new control requirements, but the extent of current abatement activities in place will affect these impacts. Designation as being in class 1 states does not mean that installations in states with high stringency will be free of problems from NPSP. On the contrary, it assumes that they are already addressing NPSP, out of current necessity, and will continue to develop their programs; but, they do not face the same potential regulatory "shock" as installations in class 3 states.

This matrix gives an approximation of the extent and locations of potential impacts from the CWA. However, it lacks information about installation-level abatement programs. That

information is not readily available at a central level. AEPI is currently conducting a comprehensive survey of installation erosion control and management plans. As soon as the survey information has been collected, the matrix can be updated and revised as necessary. The information will also help identify where the Army could focus its continuing erosion control and management plan implementation.

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State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Alabama 2nd Army EPA Region IV	NPS program class 3 State NPSP control emphasis on resource extraction, silviculture, and urban runoff and construction. Several scattered watershed projects throughout the state. Program is run by the Alabama Dept. of Environmental Management State Regulations: • Describes quality standards and uses, and classifies each state water. "Outstanding waters" areas must use BMPs. *Alabama Water Quality Standards* (Ala. Admin. Code 335-6-10 (1993))	• Fort McClellan 45,723 total acres — 412,229 for range maneuvers; rolling and mountainous forested terrain TRADOC	• 1 Battalion-sized combat service support unit at one time in non-live fire exercises. • Variety of rifle and pistol ranges as well as artillery, mortar, and a demolition area.	artillery tracked vehicles field maintenance demolition area		High
		• Fort Rucker 58,492 total acres — 50,000 for training; flat to gently rolling and heavily wooded. TRADOC	• 2 Battalion-sized combat service support units at one time in non-live fire exercises • 8 firing ranges including aerial gunnery • Demolition area	artillery tracked vehicles field maintenance demolition area	LCTA , no GRASS platform	High
Alaska 6th Army (N) EPA Region X	NPS program class 3 NPSP has low state priority. Alaska was one of the last states to submit an approved §319 plan. State Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Alaska Water Quality Standards* (Alaska Admin. Code tit.18 §70 (1989)	• Camp Carroll (Fort Richardson) 61,552 acres total — 32,717 acres for training; rolling with woods and muskeg bog ARNG	• 2 Battalion-sized combat arms units or combat service support units at one time in non-live fire exercises • 13 firing ranges — 9 types including mortar, rocket launcher, artillery, and tank	large group maneuvers artillery tracked vehicles field maintenance		HIGH

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Alaska 6th Army (N) EPA Region X (cont.)		• Fort Greeley 651,000 acres total — 628,008 acres for training; rolling wooded areas with open tundra and muskeg bogs USAPAC	• 2 battalion-sized combat arms units or combat service support units at one time in non-live fire exercises • 22 firing ranges — 6 types including mortar, artillery, and tank • US. Army Arctic Test Center	large group maneuvers artillery tracked vehicles field maintenance		High
		• Fort Wainwright 1,397,015 acres for training — training areas split into 4 areas: 5,849 acre training area 3,190 acre range complex, 642,000 acre bombing and gunnery range (mostly muskeg bog area), 745,976 acre maneuver area (mostly thickly wooded and mountainous)	• Can accommodate company live-fire exercises, platoon to brigade-sized marches • 61 firing ranges 14 types including 37 Artillery ranges, mortar ranges, aerial gunnery ranges, and a demolition area.	large group maneuvers artillery tracked vehicles field maintenance bombing and gunnery range		High
Arizona 6th Army EPA Region IX	NPS program class 2 Nonpoint source Water Quality Management Program led by Arizona Dept. of Environmental Quality (ADEQ).	• Florence Military Reservation 24,860 total acres - 4,000 acre impact area; hilly desert ARNG	• 1 battalion-sized combat arms or combat service support unit at one time in non-live fire exercises • 8 firing ranges — 7 types including 2 artillery ranges	artillery tracked vehicles field maintenance	LCTA, no GRASS platform	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Arizona 6th Army EPA Region IX (cont.)	Arizona's NPSP program stems from its 1986 Environmental Quality Act which mandates an Aquifer Protection Permit Program and a Nonpoint Source Water Quality Management Program. and focuses on aquifer protection from pesticide contamination. Arizona has identified a large number of streams affected by grazing on federal lands, and ADEQ hopes to better integrate GIS system use with monitoring data. Legislation: • Environmental Quality Act (1986) requires the state to develop NPSP permit program State Regulations: • Describes quality standards and uses, and classifies each state water: *Arizona Water Quality Standards* (Ariz Comp. Admin. R. & Regs. 18-11 (1992))	• Fort Huachuca 73,344 total acres — 68,825 acres for training; rolling hills, mountains, and hilly desert TRADOC	• 1 division-sized combat arms or combat service support unit at one time in non-live fire exercises • 21 firing ranges — 21 types including artillery, rocket launcher, mortars, 105mm Howitzer, and tank tables	large group maneuvers artillery tracked vehicles field maintenance tank tables	LCTA , no GRASS platform	Low
		• Yuma Proving Ground 838,180 total acres AMC	• Absorbing transfer from Jefferson Proving Ground, IN		LCTA	Low
		• Navajo Depot Activity 28,428 total acres — 960 acres for training; hilly forest AMC	• 1 company-sized infantry, artillery, engineer or combat service support unit at one time in non-live fire exercises • No ranges	engineer training tracked vehicles field maintenance artillery		Low
Arkansas 5th Army EPA Region VI	NPS program class 3 Arkansas' nonpoint source control program focuses on identifying mining and agricultural sources. State Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Arkansas Surface Water Quality Standards* (Ark. Reg. No. 2 (1991))	• Fort Chaffee 71,979 total acres — 70,760 acres for training; varied terrain TRADOC	• 2 division-sized combat arms or combat service support unit at one time in non-live fire exercises • 27 firing ranges — 22 types, mostly rifle ranges, also hand grenade, mortar, artillery, and HJ Rocket range.	large group maneuvers artillery tracked vehicles field maintenance	LCTA , GRASS platform	High

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
California 6th Army (S) EPA Region IX	NPS program class 1 California exercises various levels of NPS control in state agencies as well as local governments. Water Quality programs are implemented by a state water quality board and nine regional boards, but local governments are empowered to adopt erosion control and coastal area restrictions. These are aimed mostly at development. California Dept. of Transportation and other state agencies have developed handbooks for nonpoint source pollution control. The state encourages voluntary implementation of BMPs. Several specific watershed projects have tighter control. State Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *California Water Regulations* (Cal. Admin. Code. tit 23 § 3:6-15 (1992)) • list of hazardous wastes from non-specific sources in Cal Admin. Code tit 22 § 66261.30—.31	• Fort Hunter Liggett 168,000 acres — all for training; varied terrain FORSCOM	• 1 Division-sized combat arms or combat service support unit at one time in non-live fire exercises • No ranges, but tank tables and artillery impact areas	large group maneuvers artillery tracked vehicles field maintenance tank tables	LCTA	Low
		• Fort Irwin 642,582 total acres — 470,000 acres for training; varied terrain FORSCOM	• 1 Brigade-sized combat arms or combat service support unit at one time - conducting LIVE FIRE exercises • 29 ranges — 16 types including several tank tables, large artillery, mortar, aerial gunnery, and Demolition • National Training Center	large group maneuvers artillery tracked vehicles field maintenance live fire	LCTA , ARC/INFO platform dust control	Low
		• Camp Roberts 8,000 acre impact area Federal control licensed to state ARNG	• 60 training areas and ranges including tank tables, demolition areas, mortar, artillery, and anti-armor warfare	artillery tracked vehicles field maintenance	LCTA , no GRASS Platform	Low
		• Camp Parks Total area 1,000 acres flat to gentle hills FORSCOM	• Suitable for limited infantry company tactical exercises, but not armored tactical exercises. • no firing ranges			Low
		• Keystone Rifle Range Federal license 192 acres of range complex; level to gently rolling terrain	• < .30 caliber limit • use restricted to range firing			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
California 6th Army (S) EPA Region IX (cont.)		• Fort Ord 28,014 total acres — 14,244 acres for training; varied terrain BRAC closure list FORSCOM	• 1 Brigade-sized combat arms or combat service support unit at one time in non-live fire exercises • 28 firing ranges — 15 types including mortar and artillery	mortar/artillery large group maneuvers artillery tracked vehicles field maintenance		Low
Colorado 6th Army (S) EPA Region VIII	NPS program class 2 Colorado is focusing on silvicultural, urban runoff, abandoned mines, and construction runoff. They are developing and using erosion control education programs for stream bank erosion, and many demonstration watershed and NPSP control projects. Several federal agencies, including BLM, BR, and USFS, involved in erosion reduction and riparian improvement. Regulations: • Describes standards, uses, and water classes. Does not assign waters to classes — no specific nonpoint source discussion: *Colorado Water Quality Standards* (5 Colo. Code of Regs. § 1002.8 (1991))	• Buckley Air National Guard Base 3,535 total acres — 3,000 acres for training; rolling terrain - no vegetation ARNG	• 1 Battalion-sized combat arms or combat service support unit at one time in non-live fire exercises • No firing ranges	tracked vehicles		Low
		• Fort Carson 140,583 total acres — 105,000 acres for training; varied terrain FORSCOM	• 1 Division-sized combat arms or combat service support unit at one time in non-live fire exercises • 39+ firing ranges including grenade, mortar, artillery, and tank tables	large group maneuvers artillery/mortar tracked vehicles field maintenance	LCTA , GRASS platform land repair, planting and erosion control structures	High

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Colorado 6th Army (S) EPA Region VIII (cont.)		• Rocky Mountain Arsenal 1280 total acres, all for training; varied terrain AMC	• Company-size operations • 2 ranges — rifle and pistol			Low
		• Pinon Canyon Maneuver Site 243,700 total acres. FORSCOM			LCTA, land repair and erosion control structures	High
		• Bennet Training Area Federally owned licensed to state 242 acres, all for training; rolling terrain with sparse vegetation	• 1 Company-sized combat arms or combat service support unit at one time in non-live fire exercises	tracked vehicles		Mod.
Connecticut 1st (N) EPA Region I	NPS program class 2 Connecticut Dept. of Envtl. Protection is developing NPSP regulations emphasizing watershed management with a focus on agricultural BMPs and aquifer protection. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Connecticut Water Quality Standards* (Conn. Agencies Regs, Dept. of Env. Protection (1987)	no significant federal training areas				Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Delaware 1st Army (N) EPA Region III	NPS program class 2 Delaware was the first state with an approved 319 plan and has a comprehensive plan for NPSP control encouraging BMPs for agricultural, woodlands and construction projects. A great emphasis is placed on education and training government and private land users in BMPs implementation. Legislation: • Del. Erosion and Sedimentation Control Laws (Del. Code Ann. tit 7 § 40) Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Del. Water Quality Standards* (Del. Dept. or Nat. Resources and Envtl Control (Feb. 1990)) • Special standards for Delaware River Basin waters: *Del. river Basin commission Water Quality Regulations* (May 1991)	• New Castle Rifle Range Federal control, licensed to state 225 total acres — 75 acres for training; flat and marshy terrain ARNG	• One infantry platoon or small combat service support unit at one time in non-live fire exercises • Rifle and pistol ranges			Low
District of Colombia 1st (S) EPA Region III	NPS program class 3 District focus is on BMPs for urban runoff, There are problems with federal consistency, especially on military installations.	No significant federal training areas				Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Florida 2nd Army EPA Region IV	NPS program class 2 Florida's program focuses on enforcing construction BMPs and wetland protection regulations. The state has developed watershed management programs for priority water bodies, and is working on public education and information distribution. Florida's Surface Water Improvement and Management (SWIM) program has contributed to public awareness, and SWIM plans are approved for all of the state's priority water bodies. Regulations: • Describes standards, uses, and classes for each state water — no specific nonpoint source discussion: *Florida Surface Water Quality Standards* (Fla. Admin. Code Ann. tit 17 §§ 301,302 (1991))	• Camp Blanding Military Reservation state control 72,397 total acres — 55,000 acres for training; open, flat land with variation ARNG	• 1 Brigade-sized combat arms and combat service support unit at one time in non-live fire exercises • 61 firing ranges — 31 types including mortar, artillery, aerial gunnery, DRAGON live fire, mini-tank, and tank range	large group maneuvers artillery tracked vehicles field maintenance anti-armor	LCTA, no GRASS platform	High
		• Snake Creek Training Center State control by license from USACE 353 acres, all for training; low vegetation	• 1 Battalion-size unit conducting non-live fir exercises • No firing ranges	tracked vehicles		Mod.

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Georgia 2nd Army EPA Region IV	NPS program class 3 State encourages agricultural, construction, and urban runoff BMPs. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Georgia Water Quality Control Regs. and Standards* (Ga. Comp. R. & Regs. r. 391-3-6 (1991))	• Fort Benning 169,256 total acres TRADOC		large group maneuvers artillery tracked vehicles field maintenance	LCTA , no GRASS platform	High
		• Fort Gordon 55,502 total acres — 43,067 acres for training; flat and wooded TRADOC	• 1 Battalion-size infantry or combat service support unit CONDUCTING LIVE FIRE • 17 firing ranges — 15 types including grenade launcher, rocket launcher, chemical demonstration area, and several pistol and rifle ranges	large group maneuvers artillery tracked vehicles field maintenance live-fire training	LCTA, no GRASS platform	High
		• Fort Stewart 279,000 total acres — 278,634 acres for training; flat terrain with swamps and streams FORSCOM	• 1 Division-sized combat arms or combat service support unit at one time in non-live fire exercises • Ranges include tank, artillery, mortar, aerial gunnery, grenade, Dragon, and TOW ranges • 18 additional types of instruction areas including demolition area	large group maneuvers artillery tracked vehicles field maintenance demolition area	LCTA	High
Guam 6th Army (S) EPA Region IX	NPS program class 3	No significant federal training areas				Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Hawaii 6th Army (S) EPA Region IX	NPS program class 1 NPS program part of Haw. Dept. of Public Health water quality efforts. Biggest problems come from agriculture and construction. Soil and water conservation districts managed local NPSP programs. Hawaii has a statewide multi-agency NPSP control committee. Regulations: • Describes quality standards and uses, and classifies each state water: *Hawaii Water Quality Standards* (Haw. Admin. rules r. 11-54-04 (1992))	• Pohakuloa Training Area 114,597 total acres — 55,957 acres for training; mountainous, rocky, and wooded USAPAC	• 1 Brigade-sized combat arms or combat service support unit at one time in non-live fire exercises • All infantry weapons can be fired incl. air support	large group maneuvers artillery tracked vehicles field maintenance	LCTA	Low
		• Schofield Barracks 48,639 total acres — 44,839 for training; gradual sloping with deep gullies, 70 percent wooded USAPAC	• 1 Division-sized combat arms or combat service support unit at one time in non-live fire exercises • 25 firing ranges — 22 types including mortar, demolition, tank tables, and artillery	large group maneuvers artillery tracked vehicles field maintenance		Low
Idaho 6th Army (N) EPA Region X	NPS program class 1 State program focuses on reducing forest and agricultural NPS through BMP implementation. Idaho is also pursuing a monitoring and evaluation program for NPSP controls. Forestry management practices are required by the *Idaho Forest Practices Water Quality Management Plan*. Regulations: • Description of quality standards, uses, and classes for each state water. Includes maps — no specific discussion of NPSP: *Idaho Water Quality Standards & Wastewater Treatment Requirements* (Id. Dept. of Health & Welfare, R. & Regs. tit. 1 ch.. 2 (1990))	• Gowen Field Shared federal/ BLM/ ANG/ ARNG/ state control 152,841 total acres — 99,721 acres for maneuvers; desert terrain	• 1 Regiment/ Brigade-sized combat arms or combat service support unit at one time in non-live fire exercises • 20 live fire ranges including tank tables, aerial gunnery	live fire ranges tracked vehicles large group maneuvers field maintenance		Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Idaho 6th Army (N)	Legislation: • Allows no new NPSP producing activities to lower water quality in outstanding water areas, but existing uses can continue with BMPs: *Idaho Water Pollution Control Law* (Idaho Code. § 39.3615 (1990)	• Orchard Training Area 138,000 total acres ARNG			LCTA	Low
Illinois 4th Army EPA Region V	NPS program class 3 The state program encourages voluntary adoption of BMPs with and emphasis on reducing pesticide contamination and implementing agricultural BMPs to reduce erosion and groundwater contamination. Illinois focuses on education programs and is part of the Great Lakes Basin Compact. The state also operates a watershed tracking system to record BMPs and financial assistance in each watershed program. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Illinois Water Pollution Control Rules* (Ill. Admin. Code tit. 35 part 302 (1990))	• US. Army Training Area, Joliet 4,000 acres for training; flat and rolling, varied cover AMC	• 1 Battalion-size maneuver element • 2 rifle ranges	tracked vehicles		Mod.

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Indiana 4th Army EPA Region V	NPS program class 3 Indiana's program emphasis is on agricultural and site development erosion problems. and pesticide contamination. Erosion efforts are watershed-based, and several counties rely on SCS for assistance in identifying BMPs. The Department of Environmental Management operates a fish and sediment evaluation program to help determine areas with greatest need for pollution control. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Indiana Water Quality Standards* (Ind. Admin. Code tit 327, art. 1-2 (1990))	• Atterbury Reserve Forces Training Area Federal control-licensed to state 33,500 acres, all for training; includes an 8,000 acre impact areas. varied terrain ARNG	• 1 Brigade-sized combat arms or combat service support unit at one time in non-live fire exercises • 128 firing ranges — 28 types, including 77 Artillery Field firing locations, mortar, grenade launcher, tank tables, and aircraft strafing and bombing ranges	large group maneuvers artillery tracked vehicles field maintenance strafing and bombing range	LCTA, no GRASS platform	Mod.
Iowa 4th Army EPA Region VII	NPS program class 3 Iowa emphasizes agricultural NPSP control. Efforts focus on education and voluntary adoption of BMPs. Regulations: • *Iowa Water Quality Standards* (Iowa Admin. Code r. 567-4.61 (1990))	No significant federal training areas				Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Kansas 5th Army EPA Region VII	NPS program class 3 Kansas has identified valuable waters and developed a registry for BMPs and has several agreements with federal and state agencies on reducing NPSP. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Kansas Water Quality Standards* (Kan. Admin. Regs. 28-16-286 (1990))	• Fort Riley 101,000 total acres — 76,000 acres for training; rolling, little cover FORSCOM	• 1 Brigade-sized combat arms or combat service support unit at one time in non-live fire exercises • 22 firing ranges — 13 types including tank tables, mortar, artillery, aerial gunnery, and demolition	large group maneuvers artillery tracked vehicles field maintenance	LCTA , GRASS platform	High
		• Fort Leavenworth 6995 total acres TRADOC,			LCTA, GRASS platform	Mod.
Kentucky 2nd Army EPA Region IV	NPS program class 2 This program emphasizes watershed assessments and monitoring for problem areas. Soil conservation districts implement control programs. The state promotes public awareness of land use and water quality issues through their "Water Watch" program .	• Lexington Blue-Grass Depot Activity, AMC	• All unimproved land • Part outleased by USACE • No firing ranges			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Kentucky 2nd Army EPA Region IV (cont.)	Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Kentucky Water Quality Standards* (401 Ky. Admin. Regs. 5:026 (1992))	• Fort Campbell US Army, FORSCOM 103,000 total acres — 65,700 acres for maneuvers; varied terrain and cover FORSCOM In both KY and TN	• 2 Brigade-sized combat arms or combat service support units at one time in non-live fire exercises • 53 firing ranges — 25 types including mortar, rocket launcher, tank tables, artillery, and demolition • 24 types of additional instructional areas	• training activities include bridging, rigging, underwater fording, pipeline construction, and amphibious training; also: Drop zone large group maneuvers artillery tracked vehicles field maintenance demolition	LCTA ECMP	Mod.
		• Fort Knox 109,738 total acres — 56,300 acres for maneuver training; varied terrain includes rolling wooded hills and densely wooded area TRADOC	• 1 Brigade-sized combat arms or combat service support units at one time in non-live fire exercises • 65 firing ranges plus 28 additional field artillery ranges — includes aerial gunnery, several tank tables, anti-armor grenade, demolition area, mine warfare training, and an attack vehicle course.	tracked vehicle traffic field artillery demolition area field maintenance	LCTA , GRASS platform ongoing ECMP	Mod.
		• Western Kentucky LTA Federal control licensed to state 4,000 acres for training; rolling/woody with marshland	• 1 Battalion-sized combat arms or combat service support unit at one time in non-live fire exercises • 9 firing ranges — 8 types including tank tables	artillery tracked vehicles field maintenance		Mod.

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Louisiana 5th Army EPA Region VI	NPS program class 3 Louisiana focusing on assessment and voluntary implementation of NPS management programs. They initiated an Interagency Coordinating Committee to organize regional approaches to control. Other state and federal agencies cooperate with Dept. of Environmental Quality on NPSP efforts. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Louisiana Water Quality Standards* (La. Admin. Code tit. 33 §11 (1991))	• Camp Beaureguard State control 13,290 total acres — 12,000 acres for training ARNG	• 1 Battalion-sized combat arms or combat service support unit at one time in non-live fire exercises • 3 ranges including mini-tank range	artillery tracked vehicles field maintenance		Mod.
		• Fort Polk 199,032 total acres — 190,000 acres for training; sandy and rolling terrain pine forest and swamps FORSCOM	• 1 Division-sized combat arms or combat service support unit at one time in non-live fire exercises • 61 ranges — 46 types including anti-armor/TOW, mortar, artillery, and tank tables (I-IX)	large group maneuvers artillery tracked vehicles field maintenance anti-armor	LCTA , GRASS platform	High
		• Camp Villere Shared federal and state control 1,710 acres, all for training; flat, densely wooded ARNG	• 1 Company-sized combat arms or combat service support unit at one time in non-live fire exercises • 2 rifle and pistol firing ranges	tracked vehicles		Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Maine 1st Army (N) EPA Region I	NPS program class 2 A state Nonpoint Source Advisory Committee guides control efforts in Maine. The program emphasizes reducing site development, agricultural and silvicultural erosion, and hydrologic modifications in critical areas. The committee has also developed a model NPSP ordinance and several projects to help local governments deal with pollution control. Growth management programs are integrated with NPSP control Legislation: • description of quality standards, uses, and classes for each state water. *Maine Water Pollution Control Law* (Me. Rev. Stat. Ann. tit. 38, § 3:467 (1992)) Regulations: • Requires state coordination on watershed planning and requires consistency with plans with many exemptions. *Maine Water Pollution Control Law* (Me. Rev. Stat. Ann. tit. 38, § 410(H,K) (1992))	• Auburn Training Site Federal control, licensed to state 162 total acres — 150 acres for training; mostly flat terrain with steep ridge ARNG	• 1 Company-size engineer or combat service support unit at one time in non-live fire exercises • 1 rifle range	engineer training tracked vehicles		Mod.
		• Caswell Training Site 859 acres, all for training; rolling hills, heavily wooded Adjacent to Loring AFB ARNG	• 1 Battalion-sized artillery or combat service support unit at one time in non-live fire exercises • 6 firing ranges including LAW training	artillery tracked vehicles field maintenance		Mod.
		• Moosehorn refuge 500 total acres — 75 acres for training; wooded, rolling terrain	• 1 Company-size engineer or combat service support unit at one time in non-live fire exercises • No firing ranges	engineer training tracked vehicles		Mod.

State	N **State NPSP Programs and Regulations**	**Army Combat Training Installations**	**Installation Training Capabilities and Capacities**	**Training Activities Producing NPSP**	**Current NPSP Abatement Practices**	**Poss. Impact Rating**
Maryland 1st Army (S) EPA Region III	NPS program class 1 Maryland operates a comprehensive NPSP control program and reviews federal plans for consistency with state erosion plans. They also require submission of stormwater management plans before beginning any land development Maryland is part of Chesapeake Bay Critical Area and Susquehanna River Basin Compact (18 CFR 803). Agricultural BMPs are encouraged with matching fund programs. Regulations: • describes quality standards, uses, and classes for each state water: Maryland Water Pollution Control Regulations (Md. Regs. Code tit. 26, § 8.01.08 (1991)) • Erosion and Sediment Control Regulations (Md. Regs. Code tit 26, § 9.5 (1984)) Legislation: • Maryland Nonpoint Source Pollution Control Laws (Md. Envtl. Code Ann. §4.1 (1991)) requires grading and construction permits and requires Dept. of Environment. to review federal construction and land disturbing activities.	• Fort Meade 13,539 total acres — 2,960 acres for training; gently rolling, wooded terrain FORSCOM	• 1 Battalion-size combat arms or combat service support unit at one time in non-live fire exercises • 10 firing ranges — 5 types including LAW, and grenade	tracked vehicles	construction projects, tree cutting, and weapons firing must be approved by site supervisor. Part of Chesapeake Bay Initiative ECMP	Low
		• Aberdeen Proving Grounds 72,500 total acres AMC			Part of Chesapeake Bay Initiative	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Mass. 1st Army (N) EPA Region I	NPS program class 3 The state encourages adoption of BMPs and developed BMP handbooks for timber harvesting, construction, and resource extraction. Regulations: • Describes quality standards and uses, and classifies each state water including maps— no specific discussion of NPSP: *Mass. Surface Water Quality Standards* (Mass. Regs. Code tit. . 314, § 4.06 (1990))	• Camp Edwards Federal control; state operated 14,200 total acres — 13,200 acres for training (4k ranges; 7.1k maneuver; 2.1k impact); hilly and densely wooded terrain ARNG	• 1 Brigade-size element at one time in non-live fire exercises. as many as 6 or 7 mixed-type battalions can train • 60 ranges — 23 types including engineer demolition, mortar, and 105mm/155mm gun positions	large group maneuvers artillery tracked vehicles field maintenance engineer training demolition area	LCTA, no GRASS platform	Mod.
		• Fort Devens FORSCOM				
		• Georgetown 1,004 total acres — 900 acres for training; low terrain covered with thick brush. Swampy in Spring	• 1 Company size infantry, artillery, engineer, or combat service support unit at one time conducting non-live fire exercises. • No firing ranges	engineer training tracked vehicles	coordination with Regional Forest and Park Supervisor required 48 hours prior to use	Mod.
		• Rehoboth Federal control; licensed to state 11 total acres — 5 acres for training	• 1 company-size unit conducting non-live fire exercises.		NO LIVE FIRE or pyrotechnics	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Mass. 1st Army (N) EPA Region I (cont.)		• Townsend State Forest Shared federal and state control 2,713 total acres — 1,300 acres for training; hilly and thickly wooded	• 1 Battalion sized infantry, artillery, engineer, or combat service support unit at one time conducting non-live fire exercises. • No firing ranges	artillery tracked vehicles field maintenance engineer training		Mod.
Michigan 4th Army EPA Region V	NPS program class 2 Michigan encourages voluntary adoption of BMPs for agriculture and timber in most parts of the state, but requires comprehensive basin plans for areas where state dissolved oxygen level standards are violated and there are documented nonpoint source contributions.	• Camp Grayling State owned and operated 146,000 total acres — 143,000 acres for training; level terrain with low rolling hills. Several small lakes ARNG	• 1 Division-size combat unit at one time conducting non-live fire exercises • 38 firing ranges including grenade launcher, mortar, artillery, tank tables, mechanized infantry, and TOW & DRAGON firing	large group maneuvers artillery tracked vehicles field maintenance	LCTA, GRASS Platform	High
	Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Michigan Water Quality Standards* (Mich. Admin. Code r. 323.104 (1986)	• Custer Reserve Forces Training Site Federally owned, state licensed 7,577 total acres — 6,900 acres for training; low and rolling terrain with marshes ARNG	• 3 Battalion-size combat service support units at one time conducting non-live fire exercises • 31 firing ranges — 23 types including hand grenade, tank tables, and antitank LAW	large group maneuvers artillery tracked vehicles field maintenance anti-armor	no high angle firing	Mod.

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Minnesota 4th Army EPA Region V	NPS program class 2 Minnesota developed several watershed programs, and requires permits for activities on public lands, floodplains, shorelands, construction sites located adjacent to public waters and public drainage ways. Key agencies are the Minnesota Pollution control Agency, the Board of Water and Soil Resources, and the Minnesota Department of Natural Resources. Regulations: • Describes quality standards and uses, and classifies each state water: *Minnesota Water Quality Standards* (Minn. R. 7050.0460-0470 (1990)) Legislation: • Requires coordination of NPSP programs and monitoring of program effectiveness (Minn. Stat. § 8A.103F.751 (1990))	• Camp Ripley State control 53,000 total acres — 50,000 acres for training; varied terrain with heavy forest, swamps, lakes, and streams ARNG	• 2 Brigade-size combat arms or combat service support units in non-live fire exercises at one time. • 2 battalion and 3 company-size units accommodated during winter • 49 firing ranges — 30 types including mortar, tank tables, artillery, aerial gunnery, TOW & DRAGON range, and combat engineer vehicle range	large group maneuvers artillery tracked vehicles field maintenance engineer training	LCTA, GRASS Platform	Mod.

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Mississippi 2nd Army EPA Region IV	NPS program class 3 Mississippi encourages BMPs for construction and silvicultural activities. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Mississippi Water Quality Criteria* (Miss. Air & Water Quality commission (1985))	• Camp Shelby 134,000 total acres — 100,000 for training; gently rolling with pine and intermittent fordable streams ARNG	• 1 Division-sized combat arms or combat service support units in non-live fire exercises at one time. • 27 firing ranges — also a drop zone, demolition area, tank tables and artillery.	large group maneuvers artillery tracked vehicles field maintenance demolition area drop zone	LCTA, GRASS Platform	High
		• Camp McCain Federal control, licensed to state 7,500 acres, all for training; rolling and wooded terrain with poorly drained low areas ARNG	• 2 Battalion-size combat arms or combat service support units in non-live fire exercises at one time. • 23 firing ranges — 19 types including tank tables, LAW, and engineer training area	large group maneuvers artillery tracked vehicles field maintenance engineer training	LCTA, no GRASS platform	h
Missouri 5th Army EPA Region VII	NPS program class 3 Missouri has an agricultural focus to their NPSP program encouraging use of BMPs. More than 70 watershed programs are underway to reduce agricultural NPSP. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Missouri Water Quality Standards* (Mo. Code Regs. tit 10, § 20-7.031 (1991))	• Camp Clark Shared fed., state control 1.282 total acres — 900 acres for training; open and rolling terrain ARNG	• 6 company-size bivouac and training Sites for Infantry, Artillery, Engineer or Combat Service support .• 3 firing ranges including grenade launcher	timber, trestle bridge, panel bridge, float bridge, mine field, demolition tracked vehicles		h
		• Fort Crowder Federal control licensed to state 5,400 acres, all for training; rolling wooded and prairie terrain ARNG	• 1 Battalion-size combat arms or combat service support unit in non-live fire exercises at one time • 4 firing ranges including rocket launcher	tracked vehicles field maintenance		Mod.

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Missouri 5th Army EPA Region VII (cont.)		• Fort Leonard-Wood 60,000 total acres TRADOC		engineer training	LCTA, GRASS platform	High
		• Weldon Spring Federal control, licensed to state 16,544 total acres — 1,350 acres for training; open and rolling terrain	• 2 Company-size Infantry, artillery, Engineer or combat service support units in non-live fire exercises at one time • 1 rifle range	artillery tracked vehicles field maintenance engineer training		Mod.
Montana 6th Army (N) EPA Region VIII	NPS program class 3 State programs are aimed at education, money, and technical assistance for agricultural land users. Use of BMPs is encouraged on a voluntary basis. Some mandatory requirements have been proposed for private timber harvesting activities. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Montana Surface Water Quality Standards* (Mont. Admin. R. 16.20 (1985))	• Fort Missoula 52 acres for training; 4 miles from USFS "Blue Mountain" mountainous training area (4,878 acres for training) FORSCOM	• Ft Missoula can accommodate small units • Blue Mountain can accommodate Battalion-size unit • 11 firing ranges at Fort Missoula including grenade and demolition	demolition area		Low
		• Fort W.H. Harrison Federally licensed to state 2,912 total acres — 2,200 acres for training; flat terrain surrounded by hills ARNG	• 1 Battalion-size combat arms or combat service support unit in non-live fire exercises at one time • 11 firing ranges including grenade and demolition	tracked vehicles field maintenance demolition area		Mod.
		• Townsend Limestone Hills Shared control: USDI, BLM, state, and private ownership 21,000 acres for training; mountainous, grass and sage covered limestone	• 2 Company-size units • 13 firing ranges including tank tables, mortars, aerial gunnery, demolition and artillery ranges	artillery tracked vehicles field maintenance demolition area		Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Nebraska 5th Army EPA Region VII	NPS program class 2 Sate NPS Task Force includes representatives from USACE, and emphasis is on wellhead and ground water protection. Nebraska has started several clean lakes programs. Nebraska has initiated a comprehensive monitoring program. The Director of Environmental Control is given discretion on the need to implement watershed plans for areas with NPSP (Neb. Rev. Stat. § 46-674.06 (1992)) Regulations: • Describes quality standards and uses, and classifies each state water including maps — no specific discussion of NPSP: *Nebraska Water Quality Standards* (Neb. Dept. of Envtl Control, tit. 117:6 (1990))	• Camp Ashland Shared control: federal, federally leased, and state owned 937 acres, all for training; flat with riparian trees ARNG	• 1 Company-size combat arms or combat service support unit in non-live fire exercises at one time • 4 firing ranges including grenade range			Low
		• Hastings Federal, licensed to state 3,211 total acres — 3,200 acres for training; flat terrain. 75% of area is impact area ARNG	• 1 Company-size combat arms or combat service support unit in non-live fire exercises at one time • 8 firing ranges including tank tables and a hand grenade range			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Nebraska 5th Army EPA Region VII (cont.)		• Mead LTA Federal, licensed to state 1,185 acres, all for training; flat with gullies ARNG	• 1 Company-size combat arms or combat service support unit in non-live fire exercises at one time • 2 firing ranges including one mini-tank range			Low
		• Stanton Federally leased, licensed to state 800 acres for training; rolling terrain with tree and pasture cover	• Small units • No firing ranges			Low
		• Stapleton, WET site Federally leased, licensed to state 160 acres for training; level to gently rolling hills	• Small units • 155mm Howitzer training		only available to Nebraska ARNG for weekend training. Track Vehicle Routes strictly enforced	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Nevada 6th Army (S) EPA Region IX	NPS program class 2 Nevada's program is based on federal programs and agencies offering financial, technical, and educational assistance to private landowners. Additional efforts include basin-wide encouragement of BMPs, erosion and runoff control Capital Improvement Program, and development of stream protection and restoration programs. No statewide erosion control regulations. Legislation: State Water Commission is authorized to prescribe controls for diffuse sources if determined by director to significantly affect water quality in violation of standards or if necessary to protect waters of high quality (Nev. Rev. Stat. § 445.2533 (1989). Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Nevada Water Quality Standards* (Nev. Admin. Code ch. 445 §1341 (1990))	• Hawthorne Army Ammunition Plant Federal control, licensed to state 151,680 acres, all for training; AMC	• Variety of ranges allowing demolition self-propelled artillery, and crew served weapons			Mod.
		• Stead Training Facility Federal control, licensed to state 368 acres, all for training; flat to hilly terrain with sagebrush cover	• 1 Platoon -size combat arms or combat service support unit in non-live fire exercises at one time • No firing ranges		no live-fire exercises	Low
		• Yerlington BLM control, permitted to state 5,120 acres, all for training; barren and rolling terrain	• 2 Company-size combat arms or combat service support unit in non-live fire exercises at one time • No firing ranges			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
New Hampshire 1st Army (N) EPA Region I	NPS program class 3 New Hampshire NPSP control emphasizes control of site development, and logging. The state is currently working to develop baseline conditions for monitoring sediment and substrate levels and conditions of water bodies once BMPs are in place. Regulations: • Describes quality standards and uses but no stream class assignments or specific discussion of NPSP: *New Hampshire Water Quality Standards* (N.H. Code Admin. R. Env-Ws 430 (1990))	• Hopkins-Everett Reservoir (LTA) license from USACE 94 acres, all for training; hilly and wooded terrain ARNG	• 1 Company-size of infantry, engineer, or combat service support unit • No firing ranges		restricted to 14.5 mm trainer live fire only	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
New Jersey 1st Army (N) EPA Region II	NPS program class 1 New Jersey's program has a high level of restriction on land disturbances and requires mandatory erosion protection. Soil conservation districts must approve erosion control plans prior to construction. NJ promotes public education programs and has more than 60 citizen groups monitoring water quality. NJ has also established interstate cooperation on estuary protection efforts., and several laws on wellhead protection, aquifer recharge protection and watershed buffers. New Jersey plans to increase monitoring to determine impacts of NPS pollution and increase NPSP control authority for local governments. Regulations: • Describes quality standards and uses, and classifies each state water: *New Jersey Water Quality Standards* (N.J. Admin. Code tit. 7 § 9-4 (1993)) • Soil Erosion and Sediment Control (N.J. Admin. Code tit. 2 §§ 90-1—90-14 (1987)) • Spill control regulations: (N.J. Admin. Code tit. 7 § 1J (1993))	• Fort Dix 31,933 total acres — 26,185 acres for training; gently rolling terrain FORSCOM	• 3 Battalion-size combat arms or combat service support units in non-live fire exercises at one time • 49 firing ranges — 18 types including LAW, grenade, artillery, mortar, tank tables, mini tank range, and engineering demolition and claymore.	large group maneuvers artillery tracked vehicles field maintenance anti-armor engineer training demolition	GRASS under development	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
New Mexico 5th Army EPA Region VI	NPS program class 2 New Mexico encourages voluntary implementation of BMPs and evaluates their effectiveness. The state is concerned with federal consistency in land management for NPS. The State nonpoint Source Task Force coordinates joint watershed management efforts with SCS, USFS, BLM. Intense grazing and timbering adjacent to high quality upland streams are a major source of concern. Regulations: • Describes quality standards and uses. Does not assign streams to classes. Encourages voluntary adoption of BMPs for NPSP. *Water Quality Standards for Interstate and Intrastate Streams in New Mexico* (N.M. Water Control Admin. Nov. 1991)	• Fort Bliss Reservation - Dona Ana Range Camp 1,054,156 acres for training (split into several areas); flat and sandy terrain with tall mesquite cover	• 2 Division-size combat arms or combat service support unit in non-live fire exercises at one time • Largest area can accommodate 1 Brigade-size unit • 21 firing ranges — 9 types including mortar and LAW	large group maneuvers artillery tracked vehicles field maintenance	LCTA, GRASS platform	High
		• Deming Federal control (withdrawn from Public Domain) 2,081 acres, all for training; sandy and rocky varied terrain	• Company-size combat arms or combat service support unit in non-live fire exercises at one time • 1 rifle range			Low
		• Roswell LTA Federal control, licensed to state 4,827 acres, all for training; level and sandy terrain with grass and cactus cover	• 1 Company-size combat arms or combat service support unit in non-live fire exercises at one time • 1 rifle range			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
New Mexico 5th Army EPA Region VI (cont.)		• Sante Fe BLM special use permit 1,680 acres for training; flat with low hills and streams	• Platoon or Company infantry tactics • WET site			Low
		• Fort Wingate Army Depot 727 acres for training slightly hilly with grass and brush cover AMC	• Platoon or Company infantry tactics • Suitable for limited tracked vehicles • WET site			Low
		• Farmington 10,240 acres, all for training; slightly hilly with streambeds	• Varied uses for small units • WET site			Low
		• Taos WET Site Federal lease 90 acres adjacent to municipal airport, all for training; flat, covered with grass and brush	• Maneuver area for platoon of track vehicles • WET Site			Mod.
		• Tucumcari Federal control, licensed from BR 50 acres for training; flat with grass/brush cover	• Small unit infantry tactics • WET site • 2 pistol ranges			LOW
		• Carlsbad Federal control (public domain withdrawn) 720 acres, all for training; rolling foothills with grass/brush cover	• Battery-size unit of track vehicles of an AW ADA unit • 1 rifle range • WET Site			Mod.

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
New York 1st Army (N) EPA Region II	NPS program class 2 New York's program encourages adoption of BMPs and emphasizes coastal area erosion control measures. NPSP is specifically addressed in state water law. Over 50 state and local programs address NPSP, and the state is implementing a statewide NPS data collection program. New York is concerned about contaminated sediment as a significant source of NPSP. New York is involved in several interstate agreements including the Delaware River Basin Compact, the Susquehanna River Basin Commission, and the Great Lakes Basin Compact. Regulations: • Describes quality standards and uses, but does not classify each water: *New York Water Quality Standards* (N.Y. Comp. Codes R. & Regs. tit. 6 (1988) Legislation: • Directs state to take the actions specified in CWA §319 and authorizes Water Commissioner to promulgate regulations if he determines it necessary (N.Y. Conserv. Law § 17-1401 (Consol. 1993))	• Fort Drum 107,265 total acres — 90,000 acres for training; gently rolling with rocky soil. some poorly drained areas FORSCOM	• 1 reinforced Brigade-size combat arms or combat service support unit in non-live fire exercises at one time • 34 ranges — 15 types including rocket launchers, tank firing range, and 14 Engineer Training Sites	large group maneuvers artillery tracked vehicles field maintenance engineer training	LCTA, GRASS platform LRAM ongoing	High

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
New York 1st Army (N) EPA Region II (cont.)		• Malone Target Range Federal lease 43 acres, all for training; flat and slightly wooded FORSCOM	• 1 Company-size infantry unit at a time conducting non-live fire exercises • 1 rifle range			Low
		• Olean Target Range Federal lease 127 acres, all for training; varied flat and hilly wooded terrain FORSCOM	• 1 Company-size combat arms or combat service support unit in non-live fire exercises at one time • No firing ranges		• Stream fording prohibited. Mud must be cleaned from roadway. No range firing allowed	Low
		• Rome Federal lease 30 acres, all for training; rolling and heavily wooded	• 1 Platoon-size infantry, engineer, or combat service support unit in non-live fire exercises at one time • no firing ranges			Low
		• Farmingdale Training Site Federal control, licensed to state 13 acres for training; flat and open terrain	• Small unit tactics and bivouac • No firing range			Low
		• Ticonderoga Training Area Federal lease 105 acres, all for training; flat terrain	• 1 infantry company can conduct non-live fire exercises at one time • No firing ranges			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
New York 1st Army (N) EPA Region II (cont.)		• Mariaville Training Area Federal lease 222 acres, all for training; cleared, flat terrain	•1 infantry company can conduct non-live fire exercises at one time • No firing ranges		access limited to troops and rubber-tired vehicles. no ammunition of any type allowed	Low

State	N **State NPSP Programs and Regulations**	**Army Combat Training Installations**	**Installation Training Capabilities and Capacities**	**Training Activities Producing NPSP**	**Current NPSP Abatement Practices**	**Poss. Impact Rating**
North Carolina 2nd Army EPA Region IV	NPS program class 1 North Carolina requires mandatory implementation of erosion control plans and implementation of BMPs for areas failing to meet water quality levels. The state also requires undisturbed buffers adjacent to trout streams. Permits are required for all land disturbing activities. The State Environmental Management Commission leads North Carolina's NPSP efforts. Regulations: • Describes quality standards and uses, and classifies each state water : *North Carolina Water Quality Standards* (N.C. Admin. Code tit. 15A r. 2B. (1991)) • Erosion control plans must be filed 30 days prior to beginning construction and groundcover improvement required at all land disturbance sites greater than 1 acre, and BMPs must be in place during construction activities including on access roads (N.C. Admin. Code tit. 15B r. 4B.0016 (April 1992)) • Establishes limits on the percent of land in high water quality tracts that can be uncovered at any one time (N.C. Admin. Code tit. 15B r. 4B.0027 (April 1992))	• Fort Bragg 137,000 total acres — 125,000 acres for training; medium rolling, sandy soils with wooded area Home to XVIII Army Corps FORSCOM,	• 1 Brigade-size combat arms or combat service support unit conducting non-live fire exercises at one time • 23 separate firing ranges — 11 different types including LAW, grenade, mortar, and artillery	large group maneuvers artillery tracked vehicles field maintenance drop zone	LCTA, GRASS platform ECMP, movement restrictions, stream crossing restrictions, BMPs joint watershed study with Soil Conservation Service	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
North Carolina 2nd Army EPA Region IV (cont.)	Legislation: • Develops minimum mandatory standards to control pollution from sedimentation: N.C. Sedimentation Pollution Control Act (N.C. Gen. Stat. § 113A-51 (1991)	• Camp MacKall 6542 total acres	Stand-by maneuver area			Low
North Dakota 6th Army (N) EPA Region VIII	NPS program class 3 North Dakota focuses on agricultural NPSP control and awareness programs. NPS task force includes representatives from several federal agencies and recommends BMPs, but implementation is not required. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *North Dakota Water Quality Standards* (N.D. Admin. Code § 33-16-02 (1989))	• Camp Davis LTA 33 acres, all for training; rough and hilly terrain with dense underbrush cover	• No maneuver capability • 2 firing ranges — rifle and pistol			Low
		• Garrison LTA 707 acres, all for training; gently rolling hills and grasslands	• 1 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • will accommodate all engineer training including demolition firing exercises • 2 firing ranges	engineer training demolition		Mod.
		• Williamson LTA 300 acres, all for training; hilly with sparse cover	• 1 Platoon-size combat arms or combat service support unit conducting non-live fire exercises at one time • 1 rifle range			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Ohio 4th Army EPA Region V	NPS program class 1 Ohio encourages voluntary implementation of BMPs except in livestock waste management and areas violating mandatory standards for urban sediment. Emphasis in on agriculture, but also focuses on 33 watershed demonstration projects and scenic river programs. Funding for scenic rivers comes from a tax return check-off box. Ohio EPA coordinates 6 regional planning agencies to assist with NPS program, and a special NPSP fund was created to be administered by state EPA (Ohio Rev. Code § 6111.037 (1992)) Ohio is part of Great Lakes Basin Compact Regulations: • Erosion control plans required for any earth-disturbing activity, establishes conservation planning practices for owners and directs the SCS Chief to ensure compliance: *Ohio Non-point Source Regulations* (Ohio Admin. Code § 1501 (1992)) • Describes quality standards and uses, and classifies each state water: *Ohio Water Quality Standards* (Ohio Admin. Code § 3745 (1993))	• Ravenna Arsenal Federal control, licensed to state 920 acres, all for training; slightly rolling terrain with light cover AMC	• 1 Company-size armor, infantry, or combat service support unit conducting non-live fire exercises at one time • No firing ranges	tracked vehicles		Low
		• Camp Sherman Rifle Range Federal control, licensed to state 468 acres, all for training; varied and slightly wooded terrain ARNG	• 2 firing ranges — rifle and machine gun			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Oklahoma 5th Army EPA Region VI	NPS program class 3 State efforts encourage voluntary agricultural BMP implementation in targeted watersheds. Education, technical assistance and cost sharing also provided in small watershed demonstration projects Regulations: • Describes quality standards and uses, and classifies each state water: *Oklahoma Water Quality Standards* (Okla. Admin. Code tit. 785:45 (1992)) • State Water Resources Board will address NPSP complaints where specific responsible parties can be identified and the board will continue to study effectiveness of BMPs: *Oklahoma Pollution Remedies Regulations* (Okla. Admin. Code tit. 785:40-1-8 (1992))	• Camp Gruber Shared federal control (26, 075 acres) state control (40,000 acres) 34,000 acres for training; low rocky hills with heavy cover ARNG	• 1 brigade-size combat arms or combat service support unit conducting non-live fire exercises at one time • 12 firing ranges including field artillery, mini-tank, and a LAW range • additional training areas	large group maneuvers artillery tracked vehicles field maintenance anti-armor	LCTA, no GRASS platform	High
		• Fort Sill 128,621 total acres — 86,700 acres for training; varied terrain TRADOC	• 1 Brigade-size combat arms or combat service support unit conducting non-live fire exercises at one time • 22 firing ranges — 13 types including grenade and rocket launcher, mortar, and field artillery • additional training areas	large group maneuvers artillery tracked vehicles field maintenance	LCTA , GRASS platform	High
		• Lexington Army Aviation Facility Shared federal (240 acres) and state (18,000 acres) control 240 acres for training; gently rolling with wooded area adjacent to 18,000 acre state Game Refuge	• Battalion-size bivouac can be accommodated on game refuge • Several firing ranges • Area completely fenced			High

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Oregon 6th Army (N) EPA Region X	NPS program class 2 Oregon's program focuses on monitoring, assessment, evaluation, and coordinated resource management and planning. The state has developed action plans for site-specific projects and has agreements with several federal agencies. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Oregon Water Quality Standards* (Or. Admin. R. 340-41)	• Camp Adair Federal control, licensed to state 640 acres, all for training	• 2 firing ranges — rifle and pistol			Low
		• Camp Rilea State owned 2,000 acres on site plus approximately 200,000 acres of adjacent forest land available for training (ownership divided between forest service and private timber companies); coastal dune terrain ranging from open meadowlands to dense forest.	• 3 Battalion-sized combat arms or combat service support unit conducting non-live fire exercises at one time • 13 firing ranges including LAW, mortar, and Claymore mine range	large group maneuvers artillery tracked vehicles field maintenance	increased restrictions on silvicultural erosion management practices could limit willingness to share land for combat training	Mod.
		• Redmond Training Area Federal control, licensed to state 17,280 acres, all for training; varied terrain and cover	• 1 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • No firing ranges • No live ammunition allowed	artillery tracked vehicles field maintenance		Mod.
Penn. 1st Army (S) EPA Region III	NPS program class 1 Pennsylvania requires and enforces erosion and sediment pollution control plans. The state also requires municipalities to develop watershed stormwater management plans and participates in Chesapeake Bay efforts by promoting BMPs. Pennsylvania is also part of Susquehanna River Basin Commission and Great Lakes Basin Compact,. Other program focus points are	• Fort Indiantown Gap 18,556 total acres — 16,765 acres for training; flat, hilly, and mountainous terrain with varied cover FORSCOM	• 1 reinforced Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • 37 ranges — 26 types including tank tables, artillery, grenade, mortar, and a demolition area	artillery tracked vehicles field maintenance		Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Penn. 1st Army (S) EPA Region (cont.)	integrated pest management and urban and abandoned mine runoff. Regulations: • Describes quality standards and uses, and classifies each state water: Pennsylvania Water Quality Standards (Pa. Code §25.43 (1993))	• Conemaught River Reservation Shared federal and state control 7,000 acres, all for training; varied terrain	• 1 Battalion-size unit can bivouac • No firing ranges		• USE RESTRICTIONS on digging, planting, and cutting trees and repairing roadways	Low
Puerto Rico 2nd Army EPA Region II	NPS program class 2 This program focuses on two watersheds. The Environmental Quality Board has operated an island wide sediment and erosion control program since 1984 to control sedimentation from agriculture, construction and mining. High fecal coliform levels from human settlements also present a significant problem. Regulations: • Describes quality standards and uses — no specific discussion of NPSP: *Puerto Rico Water Quality Standards Regulations* (P.R. Envtl. Quality Board (July 1990))	• Fort Allen Federal licensed to Commonwealth 942 total acres — 642 acres for training; varied terrain with brush and tree cover				Low
		• Camp Garcia (Vieques Island) 11,500 acres for training; varied terrain and cover	• Live fire • 11 firing ranges including grenade, LAW, surface and air impact areas, and a demolition range. • 5 Beaches	live fire training artillery tracked vehicles		High
		• Camp Santiago Federal control, licensed to Commonwealth 11,379 total acres — 7,400 acres for training (4,000 acres restricted b/c of slope); hilly terrain ARNG	• 3 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • 20+ firing ranges including tank gunnery, artillery, grenade, TOW & DRAGON, and a demolition area	large group maneuvers artillery tracked vehicles field maintenance anti-armor	LCTA, no GRASS platform	High

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Rhode Island 1st Army (N) EPA Region I	NPS program class 2 Special area management is more intense than the rest of Rhode Island. The state is developing several watershed management plans to control disturbances, and working to develop GIS base maps and monitoring data. Both Rhode Island Department of Environmental Management and Coastal Resources Management Council are working together on a National Estuary project and on BMP promotion in Coastal areas. Regulations: • Requires conformance with CWA §208 Areawide plans and describes quality standards, uses, and classes for each state water: *Rhode Island Water Standards and Regulations* (R.I. Dept. of Envtl. Management, Water Resources Div., chpts 6 & 11 (October 1988))	• Camp Fogarty Federal control, licensed to state 350 acres, all for training; gentle, rolling and flat terrain mostly wooded cover	• 2 Company-size combat arms or combat service support unit conducting non-live fire exercises at one time • 7 firing ranges including grenade launcher			Low
South Carolina 2nd Army EPA Region IV	NPS program class 2 South Carolina is encouraging voluntary implementation of BMPs especially for agriculture and forestry activities. Mandatory BMPs are required for forestry on federal and state lands, and for construction, mining, and hydrologic modifications. South Carolina is investigating additional NPSP controls. Nonpoint source	• Clark Hill Federal control, licensed to state 296 acres, all for training; hilly, densely wooded terrain	• 1 Company-size infantry, artillery, engineer, signal, or combat service support unit conducting non-live fire exercises at one time • No firing ranges	artillery tracked vehicles field maintenance engineer training		Mod.

State	N **State NPSP Programs and Regulations**	**Army Combat Training Installations**	**Installation Training Capabilities and Capacities**	**Training Activities Producing NPSP**	**Current NPSP Abatement Practices**	**Poss. Impact Rating**
South Carolina 2nd Army EPA Region IV (cont.)	programs are directed by the State Land Resources Conservation Commission and Dept. of Health and Environmental Control. Regulations: • Describes quality standards and uses, and classifies each state water: *South Carolina Water Classification Standards* (S.C. Code Regs. 61-69 (1992)) • Erosion control plans required to be submitted before for all land disturbing activities on state lands. This is aimed mostly at large land development and exempts many other uses including agriculture. (S.C. Land Resources conservation Commission §72-101 through 108 (1992))	• SC National Guard Training Center (Leesburg) adjacent to Fort Jackson 15,283 acres licensed to state 52,598 total acres — 25,000 acres for training; gently rolling and sandy terrain	• 1 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • 10 firing ranges including LAW, artillery, mortar, and tank tables	artillery tracked vehicles field maintenance	LCTA	High
		• Fort Jackson 52,301 total acres TRADOC			LCTA, GRASS platform	High

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
South Dakota 6th Army (N) EPA Region VIII	NPS program class 2 South Dakota's focus on pesticide contamination of groundwater supplies, and priority areas are subject to stringent BMP controls. The program is managed by the South Dakota Dept. of Water and Natural Resources. Legislation: • Centennial Environmental Protection Act (1989) requires continuous monitoring and modification of NPSP BMPs. Regulations: • Describes quality standards and uses, and classifies each state water. States that NPS discharges should be controlled using cost-effective methods and reasonable BMPs: *South Dakota Water Quality Standards* (S.D. Admin. R. 74:03 (1987))	• Camp Rosenbaum Shared federal and state control 900 acres, all for training	• 1 Battalion-size unit • Float bridge and tactical training • No firing ranges			Low
Tennessee 2nd Army EPA Region IV	NPS program class 3 Tennessee is undertaking studies in several watersheds to determine land use and water quality linkages. Focus on public awareness and encouragement of BMP use.	• Catoosa MTA 1627 acres for training; wooded and hilly to mountainous terrain.	• 1 Battalion of Infantry, armor, artillery, engineers, or combat service support units for non-live fire.			Mod.

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Tennessee 2nd Army EPA Region IV (cont.)	Tennessee Department of Agriculture, Division of Forestry publishes three handbooks on management practices for forestry: Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Tennessee Water Quality Standards* (Tenn. Comp. R. & Regs. ch. 1200-4-3 (1991))	• Fort Campbell 103,000 total acres — 65,700 acres for training; varied terrain and cover FORSCOM In both TN and KY	• 2 Brigade-sized combat arms or combat service support units at one time in non-live fire exercises • 53 firing ranges — 25 types including mortar, rocket launcher, tank tables, artillery, and demolition • 24 types of additional instructional areas	• training activities include bridging, rigging, underwater fording, pipeline construction, and amphibious training large group maneuvers artillery tracked vehicles field maintenance demolition	LCTA	High
		• John Sevier Rifle Range LTA federal control, licensed to state	• 4 rifle and pistol and one mini tank range • Site useful only for marksmanship training and company-size bivouac			Low
		• Milan MTA Federal control, leased to state 2,500 acres, all for training; rolling terrain with wooded cover AMC	• 1 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • 11 firing ranges including tank tables, artillery, grenade, and mortar ranges	tracked vehicles field maintenance		Mod.
		• Smyrna Training Site Federal control, leased to state 1,000 total acres — 900 acres for training; ARNG	• Company-size combat service support unit conducting non-live fire exercises • No firing ranges • No live fire			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Tennessee 2nd Army EPA Region IV (cont.)		• Tullahoma Major Training Site Located Arnold Air Station Federal control, licensed to state 43,000 acres, all for training; slightly rolling and wooded	• 1 Battalion size combat arms or combat service support unit conducting non-live fire exercises at one time • 5 firing ranges	tracked vehicles field maintenance	• cautions to avoid timber destruction, blank fire only in maneuver section RESTRICTIONS ON AMMUNITION USE	High
Texas 5th Army EPA Region VI	NPS program class 3 Texas' NPSP program encourages BMP use through educational programs and demonstration projects. Focus areas are agriculture, forestry, and groundwater impacts. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Texas Water Quality Standards* (Tex. Admin. Code tit. 31 ch. 307 (1992)) Legislation: • Municipalities directed to adopt ordinances to control NPS urban runoff (Tex. Water Code. Ann. §26.178)	• Addicks Training Area Federal control, licensed to state 809 acres, all for training; low and level, varied dense and lightly wooded terrain	• 1 Company-size infantry, artillery, engineer, or combat service support unit conduction non-live fire exercises • No firing ranges			Mod.
		• Fort Sam Houston - Camp Bullis 27,875 acres total - most for training; hilly terrain FORSCOM	• 12 firing ranges — 5 types including grenade launcher and tank tables	artillery tracked vehicles field maintenance	LCTA, no GRASS platform brush control and prescribed burning	High
		• Camp Swift Federal control, licensed to state 11,700 acres, all for training; level to rolling terrain ARNG	• 3 Battalion-size artillery, engineer, airborne, infantry, or combat service support unit conducting non-live fire exercises • 11 firing ranges including grenade launcher, LAW, tank tables, and a demolition range	large group maneuvers artillery tracked vehicles field maintenance engineer training demolition		High

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Texas 5th Army EPA Region VI (cont.)		• Barker Dam Drop Zone 440 acres, all for training ARNG	Clear of any obstacles	drop zone		Mod.
		• Fort Wolters Federal control, licensed to state 3,985 acres, all for training; rolling and sparsely wooded terrain ARNG	• 1 Battalion-size infantry or artillery unit conducting non-live fire exercise • 10 firing ranges including tank tables, and a grenade launcher	artillery/grenade tracked vehicles field maintenance		High
		• Fort Hood 2,218,579 total acres — 140,000 acres for training; gently rolling terrain FORSCOM Home to Army III Corps	• 2 Division-size combat armor or combat service support units conducting non-live fire exercises • 50 firing ranges including tank tables, grenade, mortar and artillery • 118 artillery sites • Heavy use for combat armor training	large group maneuvers artillery heavy tracked vehicle use field maintenance	LCTA , GRASS platform implementing erosion and sediment reduction project - range seeding, planting and structures	High
		• La Reforma Training Area Federally leased 3,150 acres, all for training; level and brushy terrain	• Rifle and pistol ranges			Low
		• Panhandle Training Area Federal lease 3,300 acres, all for training; rocky and rolling terrain	• 1 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • No firing ranges			Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Texas 5th Army EPA Region VI (cont.)		• Texarkana Federal control, licensed to state 219 acres, all for training; flat and heavily wooded terrain FORSCOM	• 1 Platoon-size infantry in non-live fire exercises • No firing ranges			Low
U.S. Virgin Islands 2nd Army EPA Region II	NPS program class 3 The Virgin Islands are conducting studies to reduce sediment from construction sites and reducing problems of sedimentation on reefs.	No significant federal training areas				Low
Utah 6th Army (S) EPA Region VIII	NPS program class 3 Utah is focusing on controlling agricultural sedimentation, nutrients, and salinity. State efforts include incentive programs for BMP adoption and riparian management plans for each BLM region in Utah. BMP adoption is voluntary. The NPSP program is coordinated by the inter-agency Utah Nonpoint Source Task Force. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Utah Water Quality Standards* (Utah Admin. R. R317-2 (1992))	• Camp W.G. Williams Shared state and federal control (federal control of 2,274 acres) 25,000 acres, all for training; varied terrain on adjoining river ARNG	• 1 Brigade-size combat arms or combat service support unit conducting non-live fire exercises at one time • 7 firing ranges including hand grenade, crew-served weapons, and artillery • Multiple training facilities • Low angle field artillery firing only	large group maneuvers artillery tracked vehicles field maintenance	LCTA, no GRASS platform	High

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Utah 6th Army (S) EPA Region VIII (cont.)		• Dugway Proving Grounds 841,000 total acres — 50,000 acres for training; rolling desert terrain AMC	• 2 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • 2 artillery and 1 mortar impact areas	large group maneuvers artillery tracked vehicles field maintenance	LCTA	High
Vermont 1st Army (N) EPA Region I	NPS program class 1 Vermont addresses NPSP through state growth management laws and comprehensive watershed management. Agriculture is the largest NPS, but urban runoff is also a large contributor. State is developing shoreland zoning options for municipalities, and a growth control law requires that natural resource issues be addressed in planning process. Regulations: • Requires use of BMPs and specifies monitoring provisions, and requires basin planning to identify strategies to address NPS. Describes quality standards and uses, and classifies each state water: Vermont Water Quality Standards (State of Vermont Water Resource Board Rules §1-02B,2-04(May 1991))	• Camp Johnson Federal control, lic to state — state control of 60 acres 729 total acres — 600 acres for training; gently rolling and flat terrain with open and wooded cover	• 1 Company-size combat arms or combat service support unit conducting non-live fire exercises at one time • no firing ranges • Adjacent to residential area			Low
		• Ethan Allen Firing Range Federal control, licensed to state 11,217 total acres — 2,365 acre joint impact area 775 acre weapons test facility; varied terrain ARNG	• 1 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • 41 firing ranges including tank tables, artillery, LAW, and Claymore demolition • Site includes GOCO weapons test facility — OFF LIMITS	artillery tracked vehicles field maintenance anti-armor		Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Virginia 1st Army (S) EPA Region III	NPS program class 1 Virginia's Division of Soil and Water Conservation works closely with the State Water Control Board on NPSP program implementation and monitoring. The agencies assist land owners develop agricultural nutrient management plans and require and inspect BMPs for forestry and urban runoff. Public awareness efforts include NPS seminars throughout the state. Virginia also focuses on target areas as part of Chesapeake Bay protection program. Regulations: • Describes quality standards and uses, and classifies each state water: *Virginia Water Quality Standards* (VR 680-21 Water Quality Standards (July 1992))	• Fort A.P. Hill 77,038 total acres — 46,181 acres for maneuver training; level to gently rolling terrain FORSCOM	• 1 Division-size combat arms or combat service support unit conducting non-live fire exercises at one time • 93 ranges including 48 indirect firing positions for mortar and artillery, hand grenade, LAW, and anti-armor ranges • 11 Demolition instruction sites	large group maneuvers artillery tracked vehicles field maintenance anti-armor demolition	LCTA part of Chesapeake Bay Initiative ECMP	Low
		• Fort Belvoir 8,656 acres total — 2,352 acres for training; gently rolling and wooded terrain	• 1 Battalion-size infantry, engineer or combat service support unit conducting non-live fire exercises at one time • No firing ranges	large group maneuvers artillery tracked vehicles field maintenance engineer training		Low
		• Fort Pickett 45,198 total acres — 35,000 acres for training; gently rolling, wooded terrain FORSCOM	• 1 Brigade-size combat arms or combat service support unit conducting non-live fire exercises at one time • Engineer training site • 27 firing ranges — 18 types including aerial gunnery, field artillery, and tank tables	large group maneuvers artillery tracked vehicles field maintenance	LCTA	Low
		• Fort Monroe			part of Chesapeake Bay Initiative BMPs and IPM	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Virginia 1st Army (S) EPA Region III (cont.)		• Fort Lee 2,758 total acres; mostly level terrain with light to heavy cover TRADOC	• 1 Company-size combat arms or combat service support unit conducting non-live fire exercises at one time • 4 pistol and rifle ranges and a demolition area • 12 additional training areas	artillery tracked vehicles field maintenance demolition	part of Chesapeake Bay Initiative Spill control plans	Low
		• Fort Story 1,451 total acres — 330 acres for training; partially wooded with small rolling hills TRADOC	• 3 Battalion-size combat arms or combat service support unit conducting non-live fire exercises at one time • No firing ranges • Well suited for tactical exercises	large group maneuvers tracked vehicles field maintenance	part of Chesapeake Bay Initiative	Low
		• Fort Eustis US Army, TRADOC 8,229 total acres; flat and partially wooded terrain	• Firing ranges include grenade launcher, artillery and LAW ranges	artillery tracked vehicles field maintenance anti-armor	part of Chesapeake Bay Initiative ECMP & nutrient reduction study	Low
Washington 6th Army (N) EPA Region X	NPS program class 1 Washington has developed a four-tiered water quality control strategy including mandatory erosion control BMPs in some areas. Current emphasis is on watershed planning and technical assistance in the Yakima River Basin, work, working for federal consistency with state programs, and protection of forestry resources. The program is led and enforced by the Dept. of Ecology.	• Camp Bonneville 3,480 acres, all for training; low hills with a creek FORSCOM	• 1 Battalion-size infantry, artillery, engineer, or combat service support unit, conducting non-live fire exercises • 4 pistol and rifle ranges + mortar, artillery and demolition areas	artillery tracked vehicles field maintenance engineer training		Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Washington 6th Army (N) EPA Region X (cont.)	Regulations: • Describes quality standards and uses, and classifies each state water: Washington Water Quality Standards (Wash Admin. Code § 173-201 (1988)) • States that all activities and facilities in watersheds of surface drinking water supplies will adequately controlled (Wash. Admin. Code §246-290-450)	• Fort Lewis 87,000 acres total 84,000 acres for training; heavily wooded and varied terrain Home to I Corps FORSCOM	• 1 Brigade-size combat arms or combat service support unit conducting non-live fire exercises at one time • 14 firing ranges — 6 types including LAW, grenade, and tank tables	large group maneuvers artillery tracked vehicles field maintenance anti-armor	LCTA, GRASS platform	Low
		• Yakima Firing/Training Center 263,131 total acres — 200,000 for training; varied terrain including mountain ridges and deep stream beds FORSCOM	• 3 Brigades-size combat arms or combat service support unit conducting non-live fire exercises at one time • 14 firing ranges including tank tables, demolition, and artillery areas • Grazing leases on open land	large group maneuvers artillery tracked vehicles field maintenance anti-armor	LCTA, GRASS platform	Low
West Virginia 1st Army (S) EPA Region III	NPS program class 3 West Virginia' is assessing and encouraging BMPs for construction, forestry, agriculture, and mining NPSP. Regulations: •*West Virginia Water Quality Standards* (W.Va. Code § 46-1 (1991))	no significant federal training areas				Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Wisconsin 4th Army EPA Region V 5 erosion and NPS regs on CELDs	NPS program class 1 Wisconsin completed comprehensive analysis of 330 major watersheds and developed management models for both urban and rural watersheds. BMP adoption is tied to water quality of affected streams. Wisconsin is also part of Great Lakes Basin Compact and operates a coastal zone program. Regulatory emphasis is on wetlands, construction, and water quality standards Legislation: • Wisconsin Water Pollution Control Law (Wis. Stat. § 144.25 (1993)) authorizes funding for NPSP financial and technical assistance and sets specific implementation instructions.	• Fort McCoy 59,770 total acres — 43,697 acres for training; flat to rolling terrain, sandy soils FORSCOM	• 1 Brigade-size combat arms or combat service support unit conducting non-live fire exercises at one time • 43 firing ranges — 25 types including artillery areas, tank tables, and a demolition range	large group maneuvers artillery tracked vehicles field maintenance demolition	LCTA, GRASS platform ECMP	Low

State	N State NPSP Programs and Regulations	Army Combat Training Installations	Installation Training Capabilities and Capacities	Training Activities Producing NPSP	Current NPSP Abatement Practices	Poss. Impact Rating
Wisconsin 4th Army EPA Region V (cont.)	Regulations: • Specifies BMPs, requires watershed plans for all watershed projects, sets cost share guidelines, and establishes administrative framework for state NPSP program: Wisconsin Nonpoint Source Pollution Rules (Wisc. Admin. Code § NR 120 (December 1989) • Describes quality standards and uses, and classifies each state water: *Wisconsin Water Quality Standards* (Wis. Admin. Code § NR 102 (June 1993)) • Wetland water quality regulations(Wis. Admin. Code § NR 103(1.01-1.08)	• Racine Small Arms Range Shared federal control (51 acres) & state control (29 acres) 80 acres, all for training; flat and woody terrain	• 1 Company-size infantry, artillery, engineer or combat service support unit conducting non-live fire exercises at one time • 2 rifle and pistol ranges	artillery tracked vehicles field maintenance		Low
Wyoming 6th Army (N) EPA Region VIII	NPS program class 3 Wyoming promotes adoption of BMPs for rangeland NPSP control through education and demonstration programs. Wyoming also has problems with agricultural practices on federal lands, and federal ownership makes up a significant portion of Wyoming. Regulations: • Describes quality standards and uses, and classifies each state water — no specific discussion of NPSP: *Wyoming Water Quality Standards* (Wyo. Dept. of Envtl. Quality, Water Quality Div., ch. 1 (Jan. 1985)	• Camp Guernsey state control 30,000 total acres — 29,560 for training; rolling hills with pine and cedar cover.	• 1 Brigade-size combat arms or combat service support unit conducting non-live fire exercises at one time • 14 ranges including LAW, mortar, artillery, and demolition areas	large group maneuvers artillery tracked vehicles field maintenance anti-armor		High

APPENDIX B

ADDITIONAL STATE REGULATIONS RELATING TO NONPOINT SOURCE POLLUTION CONTROL

This list of additional state regulations derives from the Computer Aided Environmental Legislative Data System (CELDS) operated for the US Army Corps of Engineers by the University of Illinois. CELDS accession numbers are included for reference through that system.

ALASKA

- Coastal Zone Management Program. [Alaska Admin. Code Part 6 ch. 80 (April 86)] CELDS acc.# 6249
- Land Use Activities on State Lands: Permits [Alaska Admin. Code tit. 11, § 96.010—.240 (March 1981)] CELDS acc.# 6856
- Outline of Regulations Contained in Alaska's 1989 Compilation: Alaska Coastal
- Management Program, Statutes and Regulations. [Alaska Admin. Code tit. 6 §§50, 80, and 85 (March 1984)] CELDS acc.# 10542

ALABAMA

- Land Use, Sediment and Erosion Control — no specific nonpoint source regulations for Alabama [Letter to CELDS dated 12/2/86 from Soil and Water Conservation Committee.] CELDS acc.# 6084
- Siting, Construction, and Operation of Energy Facilities; Dredging and Filling; Shoreline Erosion Mitigation; Public Access to Coastal Waters; Avoidance of Natural Hazards; Solid Waste Disposal. [Ala. Admin. Code r. 335-8-1-.06—.11 (1989)] CELDS acc.# 10534
- Water Quality Criteria: Specific Criteria for Outstanding Alabama Water. [Ala. Admin. Code r. 335-6-10-.09(8) (1993)] CELDS acc.#11831

CALIFORNIA

- Permits for Activities in Coastal Zones. [California Admin. Code tit. 14 §§ 13050—13053 (1993)] CELDS acc.# 3299

- Erosion and Sediment Control: (Requirements generally not promulgated at the state level — [Erosion and Sediment Control Handbook (forward) reprint, May, 1981)] CELDS acc.# 5595

COLORADO

- Hazardous Waste From Non-Specific and Specific Sources. [Colorado Hazardous Waste Regs; Part 261.31--.32 (1992)] CELDS acc.# 11870

CONNECTICUT

- Inland Wetland and Watercourse Uses [Conn Agencies Regs. §§ 22a-39-3 —22a-39-8 (1974)] CELDS acc.# 2329

- New England Interstate Water Pollution Control Compact. [U.S.Congress P.L. 80-292 (1947)] CELDS acc.# 6457

- Local Erosion and Sediment Control Regulations [Model Soil Erosion and Sediment Control Regulations for Land Development (1988)] CELDS acc.# 7283

DELAWARE

- Delaware River Basin Commission: Water Quality Uses and Criteria for Sediment and Stormwater Regulations [18 CFR 410] CELDS acc.# 2827

- Delaware Sediment and Stormwater Regulations (1991)

    - Permit Application and Approval Process; Section 8; CELDS acc.# 10553

    - Specific Design Criteria and Minimum Standards and Specifications; Part 1. ; Section 10; 1 -- 2 CELDS acc.# CELDS acc.# 10555

    - Maintenance Requirements; Section 15; CELDS acc.# 10559

GEORGIA

- Permits to Build upon or Alter Coastal Marshlands.[Ga. Code Ann. § 10.12.5.4 (1992)] CELDS acc.# 5134

HAWAII

- Permit for Discharges of Storm Water from Construction Activities:[Haw. Admin. Rules r. 11-55 appens C (5-7) (1992)]

- Special Conditions for Land Disturbances, Best Management Practice (BMP) Plan, and Special Conditions for Monitoring Requirements — The permittee must write and develop a site-specific plan to lessen erosion of soil and discharge of other pollutants into state waters CELDS acc.# 11368-70

IDAHO

- Road Construction and Maintenance in the Forest Lands of Idaho; [Idaho Administrative Rules; IDAPA 20.15 r. 4 §§ (a) — (e)(1992)] CELDS acc.# 8205

- Reforestation of the Forest Lands of Idaho.[Idaho Admin. Rules, IDAPA 20.15, r. 5 §§ (a) — (d). (1992)] CELDS acc.# 8258

- Slashing Management and Practices Bordering Stream Segments of Concern in the Forest Lands of Idaho. [Idaho Admin. Rules; IDAPA 20.15, r. 7—8 (1992)] CELDS acc.# 10833

- Use of Chemicals on the Forest Lands of Idaho [Idaho Admin. Rules; IDAPA 20.15, r. 6 §§ (a) — (l) (1992)] CELDS acc.# 10834

ILLINOIS

- State Guidelines for Illinois' Erosion and Sediment Control Programs; [Ill. Admin. Code tit. 8, § 650.30 (1980)]. CELDS acc.# 5806

- Great Lakes Basin Compact [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.# 6354

- Hazardous Wastes from Nonspecific and Specific Sources. [Ill. R. & Regs, tit. 35 §§ 721.131—.132.] CELDS acc.# 11158

INDIANA

- Great Lakes Basin Compact [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.# 6354

- General Permit Related to Stormwater Runoff Associated with Construction Activity. — These requirements apply to all persons who are involved in construction activity, including clearing, grading, excavation, and other land disturbing activities (except operations that result in the disturbance of less than 5 acres in total land area and which are not part of a larger common plan of development or sale) [Ind. Admin. Code tit. 327 r. 15-3-2, r. 15-5, r. 15-7 (1992)] CELDS acc.# 11673

LOUISIANA

- Land Use and Erosion Control; Louisiana has no statewide regulations concerning land use and erosion control. Regulation takes place on the local level. [Letter of 8-6-87] 1487

- Hazardous Wastes from Nonspecific and Specific Sources.[La Admin. Code tit. 13, § 4901(B) (1993)] CELDS acc.# 11645

MASSACHUSETTS

- New England Interstate Water Pollution Control Compact. [U.S.Congress P.L. 80-292 (1947)] CELDS acc.# 6457

- Coastal Zone Management Programs - Federal Consistency Procedures — includes Department of Defense for the location and design of new or enlarged defense installations or their disposal [Mass. Regs. Code tit. 301, §§ 21.00—21.25 (1980)] CELDS acc.# 7764

- Hazardous Wastes from Nonspecific and Specific Sources. [Mass. Regs. Code tit. 310 §§ 30.130--.132 (1993)] CELDS acc.# 11731

MARYLAND

- Erosion and Sediment Control Regulations. An erosion and sediment control plans required for any state or federal project or project on state owned land; also requires municipalities to develop erosion control ordinances [Md. Regs. Code tit 26, § 9.5 (1984)] CELDS acc.# 3051

- Susquehanna River Basin Compact [18 CFR 803 (1990)] CELDS acc.# 6330

MAINE

- Land Uses Allowed without a Permit in Protection Subdistricts.[Rules and Standards of the Maine Land Use Regulation Commission; Ch. 10(II) §10.16(A)(3)(a)—(M)(3)(a) (1991)] CELDS acc.# 1576

- Great Lakes Basin Compact [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.# 6354

- New England Interstate Water Pollution Control Compact.[U.S.Congress P.L. 80-292 (1947)] CELDS acc.# 6457

- Land Uses Requiring a Permit in General Management, Highly Productive Management, and Natural Character Management Subdistricts; [Rules and Standards of the Maine Land Use Regulation Commission; Ch. 10(II) §10.15 (A) — (C)(1991)] CELDS acc.# 6464

- Permit by Rule Standards for Disturbance of Soil Material Adjacent to a Wetland or Water Body [Natural Resources Protection Act; § 305.2 (1991)] CELDS acc.# 9360

- Permit by Rule Standards on Restoration of Natural Areas[Natural Resources Protection Act; § 305.12 (1991)] CELDS acc.# 9369

- Maine's Permit by Rule Provisions for Activities In or Adjacent to Wetlands and Water Bodies [Natural Resources Protection Act, § 305.1 (1991)] CELDS acc.# 10598

MICHIGAN

- Sedimentation Basins, Weirs and Cofferdams. [DNR, Div. of Land Resource Programs; R. and Regs Concerning Inland Lakes and Streams Act; § R 281.834. (1985)] CELDS acc.# 784

- Soil Erosion, Sedimentation Control, and Permits. [Mich. Admin. Code, r. 323.1703--323.1710. (1977)] CELDS acc.# 2861

- Permits Required and Uses Allowed on Michigan's Shoreland Designated as High-Risk Erosion Areas. [Mich. Admin. Code, r.281.22 (1992)] CELDS acc.# 6217

- Great Lakes Basin Compact [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.# 6354

MINNESOTA

- Great Lakes Basin Compact [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.# 6354

NEW JERSEY

- Permits for Construction in Coastal Areas. [N.J. Admin. Code, tit. 7 §§ 7-1.1—.10 (1987)] CELDS acc.# 711

- Delaware River Basin Commission: Water Quality Uses and Criteria [18 CFR 410 (1987)] CELDS acc.# 2827

- Soil Erosion and Sediment Control [N.J. Admin. Code tit. 2 §§ 90-1—90-14 (1987)] CELDS acc.# 2828

- Ninety-Day Construction Permits. [N.J. Admin. Code tit 7 §§ 1C-1.1--1.14. (1985)] CELDS acc.# 3546

- Management and Development Policies for Special Land, Water, and Riparian Areas in the Coastal Region. [N.J. Admin. Code tit. 7 §§ 7E.1—.21,.33—.48 (1990)] CELDS acc.# 5869

- Development in General Water Areas in the Coastal Region. [N.J. Admin. Code tit. 7 §§7E.4.1-.11.(1990)] CELDS acc.# 5899

- Development in General Land Areas in the Coastal Region. [N.J. Admin. Code tit. 7 §§ 7E.5.1-.7.(1990)] CELDS acc.# 5900

- Coastal Development: General Location Policies. [N.J. Admin. Code tit. 7 §§ 7E. 6.1--.3 (1990)] CELDS acc.# 5901

- Coastal Zone Management Use Policies. [N.J. Admin. Code tit. 7 §§ 7E.7.1 - .14 (1990)] CELDS acc.# 5911

- Coastal Development Resource Policies. [N.J. Admin. Code tit. 7 §§ 7E.8.1 - .16 (1990)] CELDS acc.# 5912

- NJPDES/DSW General Permit Construction Activity Storm Water: Eligibility Under Permit. [N.J. Admin. Code tit. 7 §§ 14A.3 (1992)] CELDS acc.# 11558

NEW YORK

- Delaware River Basin Commission: Water Quality Uses and Criteria for Tidal Waters. [18 CFR 410 (1987)] CELDS acc.# 2827

- Susquehanna River Basin Compact. [18 CFR 803 (1990)] CELDS acc.# 6330

- Great Lakes Basin Compact. [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.# 6354

- New England Interstate Water Pollution Control Compact. [U.S.Congress P.L. 80-292 (1947)] CELDS acc.# 6457

- Coastal Erosion Hazard Areas: Standards and Permits. [6 N.Y. Comp. Codes R. & Regs. tit. 505, § .1—.22 (1988)] CELDS acc.# 6701

NORTH CAROLINA

- Erosion and Sedimentation Control Methods [N.C. Admin. Code tit. 15a § 4B.0009(b) CELDSacc.# 1020

- Classification of Prevention of Significant Deterioration Areas. [N.C. Admin. Code tit. 15a § 2D .0530(c) (1992)] CELDS acc.# 5986

- Public Participation in Local Land Use Planning [N.C. Admin. Code tit. 15a § 7B.0207 (1990)] CELDS acc.# 9357

- Erosion and Sedimentation Control [N.C. Admin. Code tit. 15a § 4B.0010—.0015 (1992)] CELDS acc.# 10922

- Antidegradation Policy for High Quality Waters (HQW). [N.C. Admin. Code tit. 15a § 2B.0200—.0201 (d). (1992)] CELDS acc.# 11033

- Surface Water Quality Standards for Class WS-II Waters. [N.C. Admin. Code tit. 15a § [N.C. Admin. Code tit. 15a § 2B.0200—.0211 (d). (1992)] CELDS acc.# 11038

OHIO

- Great Lakes Basin Compact [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.# 6354

PENNSYLVANIA

- Erosion Control Plans and Measures. [Pa. Code §§ 102.1 -- 102.24. (1978)] CELDS acc.# 1709

- Delaware River Basin Commission: Water Quality Uses and Criteria for Tidal Waters. [18 CFR 410 (1987)] CELDS acc.# 2827

- Susquehanna River Basin Compact [18 CFR 803 (1990)] CELDS acc.# 6330

- Great Lakes Basin Compact [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.# 6354

RHODE ISLAND

- Coastal Resources Management: Permits, Variances, and Special Exceptions, and Descriptions of Coastal Resources Management Areas and Related Policies and Filling, Removing, or Grading of Shoreline Features [State of Rhode Island Coastal Resources Management Program, as Amended (1992)] CELDS acc.# 2138/2139/2140

- New England Interstate Water Pollution Control Compact. [U.S.Congress P.L. 80-292 (1947)] CELDS acc.# 6457

- Erosion Control. [1982 R.I. Pub. Laws 45-46-5; Articles I - V] CELDS acc.# 7882

SOUTH CAROLINA

- Permits for Coastal Activities: Permit Applications; Decisions on a Permit; Exceptions [South Carolina Coastal Council; Rules and Regulations for Permitting in Critical Areas of the Coastal Zone: R.30-2, R.30-4, R.30-5(A).(1993)] CELDS acc.# 3303

- Erosion and Sediment Reduction on State Lands. [South Carolina Land Resources Conservation Commission §§ 72-101 - 72-108. (1985)] CELDS acc.# 7772

- Standard Plan for Erosion, Sediment and Stormwater Runoff Control. [S.C. Dept. of Highways and Public Transportation; R.63-380 (1992)] CELDS acc.# 8561

- Specific Requirements for Permanent Stormwater Management Portion of Stormwater Management and Sediment Control Plans; Criteria for Designated Watersheds [S.C. Code Regs. 72-300 (1992)] CELDS acc.# 10856

- Maintenance Requirements for Stormwater Management Practices and Off-Site Damage Correction for Land Disturbing Activities [S.C. Code Regs. 72-300 § 308 (1992)] CELDS acc.# 10858

TEXAS

- Scope of Rules and Leases for Public Purposes [Tex. Admin. Code tit. 31 § 155.1 - 2. (1990) CELDS acc.#10398

- Permits Authorizing Limited Continued Use of Structures on Coastal Public Lands; Registration of Structures; and Federal, State, and Local Laws and Regulations. [Tex. Admin. Code tit. 31 § 155.4 - .6 and .8. (1990)] CELDS acc.#10400

VIRGINIA

- Standards for Erosion and Sedimentation Control. [Virginia Soil and Water Conservation Board; Erosion and Sediment Control Regulations VR 625-02-00 (1990) CELDS acc.#7369

- General Requirements for Erosion and Sediment Control, directing board to promulgate rules and regs [Va. Code §§ 10.1-561 — 10.1-566, and 10.1-570. (1992)] CELDS acc.#7370

VERMONT

- New England Interstate Water Pollution Control Compact. [U.S.Congress P.L. 80-292 (1947)] CELDS acc.#6457

WASHINGTON

- Shoreline Use Activities local Guidelines [Wash. Admin. Code § 173-16 (1980)] CELDS acc.#2008

- Aquatic Land Reserves. [Wash. Admin. Code; § 332-30-151 (1980)]. CELDS acc.#5379

- Wetland Area Designation Criteria; Conflicts between designations and Criteria; Lands within Federal Boundaries [Wash. Admin. Code; § 173-22-040, 055 and 070. (1988)] CELDS acc.#10549

WISCONSIN

- Great Lakes Basin Compact. [U.S. Congress; 82 Stat. 414; PL 90-419] CELDS acc.#6354

SECTION II

FEDERAL LEGISLATIVE ACTIVITY AND CONTENT RELEVANT TO NONPOINT SOURCE RUNOFF AND ARMY INSTALLATIONS SINCE THE END OF THE RESEARCH REFLECTED IN THE PAPER BY KENNETH GENSKOW IN 1994

Dr. Michael West, West Associates

October 1999

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FOREWORD

This issue paper was prepared for the U.S. Army Environmental Policy Institute by Mike West and Associates under Contract No. DACA01-98-P-0617, entitled, "Analysis of Environmental Legislation Applicable to the Department of Defense." Mr. Peter Rzeszotarski, Contract Officer's Representative at the U.S. Army Environmental Policy Institute. The author of this document is Dr. Michael A. West.

The findings of this report are not to be construed as an official Department of the Army position, unless designated by other authorized documents.

INTRODUCTION

This report has been prepared in accordance with Task 5.4.0. of the scope of work entitled "Analysis of Environmental Legislation Applicable to the Department of Defense," accompanying Contract No. DACA01-98-P-0617. Specifically, Task 5.4.0. requires preparation of seven issue papers on legislative issues with the most significant implications for the Army's environmental program. The following issue paper summarizes federal legislation activity and content relevant to Nonpoint Source Runoff and Army installations since the end of research reflected in the paper submitted in 1994 by Kenneth Genskow, entitled "Nonpoint Source Pollution: Implications of Clean Water Act Revisions on Army Combat Training and Land Management ."

BACKGROUND

In August 1994, Mr. Kenneth D. Genskow submitted a paper entitled "Nonpoint Source Pollution: Implications of Clean Water Act Revisions on Army Combat Training and Land Management" to the Army Environmental Policy Institute. Mr. Genskow found that pending legislation in the 103rd Congress reauthorizing the Clean Water Act could have significant implications for the management use of Army training lands. He identified the following Nonpoint Source Pollution (NPSP) problems with Army training:

> "Army training activities and especially tracked vehicles used in training displace soil and add to sedimentation problems in water bodies. Training area roads, stream crossing points, paratrooper drop zones, and artillery impact areas generate erosion which leads to nonpoint source pollution and nutrient increases in waterways. Petroleum product leaks and leachate from ordnances are also potential contributors to NPSP."[i]

More aggressive and comprehensive regulatory oversight of Army training lands would be triggered by the enactment of a provision that would require States to develop and enforce NPSP regulations set forth in pending Clean Water Act reauthorization legislation (S. 2093 and H.R. 3948). Enforcement of the emerging State NPSP regulation at Army facilities would be facilitated by a broader waiver of federal sovereign immunity under the Clean Water Act that would allow States to assess fines and penalties against federal agencies.

As it happened, Congress did not enact legislation reauthorizing the Clean Water Act in the 103rd Congress and the situation remained much the same when Robert Jarrett updated the Genskow paper in the 104th Congress.

On May 11, 1999, Mike West and Associates was tasked by the Army Environmental Policy Institute (AEPI) to summarize federal legislative activity and content relevant to Nonpoint Source Runoff and Army installations since the end of research reflected in the Genskow paper. The issue paper also should include plausible projections of whether and what related legislative developments to expect over the next two years and what federal legislative action did, does or may do to cause State/regional action or inaction.

SUMMARY AND COMMENTS

In accordance with the above tasking, Mike West and Associates screened legislation in the 104th – 106th Congresses to identify bills related to the "Clean Water Act," "nonpoint sources," and federal facility or federal agency issues involving the Clean Water Act, Coastal Zone Management Act, or specific estuaries like the Chesapeake Bay. Using this methodology, twenty-five pieces of legislation were identified: five bills in the 104th Congress, eleven in the 105th Congress, and nine in the 106th Congress as shown in Table 1.

Of this number, one bill was enacted by Congress, S. 1316, the Safe Drinking Water Act Amendments of 1996," **[104th Congress]** but it specifically excluded its application to nonpoint sources that were regulated by the Clean Water Act. Two bills passed the House—H.R. 961, Clean Water Amendments of 1995 **[104th Congress]** and H.R. 999, Beaches Environmental Assessment, Cleanup, and Health Act, 1999 **[106th Congress]**. One bill passed the Senate—S. 1222, Estuary Habitat Restoration Partnership Act of 1998 **[105th Congress].** One bill has been reported out of committee—S. 492, Chesapeake Bay Restoration Act of 1999 **[106th Congress].** One bill has been reported out of committee—S. 492, Chesapeake Bay Restoration Act of 1999 **[106th Congress].** Hearings were held on five other bills—S. 522, Beaches Environmental Assessment, Closure, and Health Act of 1999; S. 1320, Public Lands Planning and Management Improvement Act of 1999;H.R. 1110, Coastal Enhancement Act of 1999 **[106th Congress]**; S. 1253, Public Lands Management Improvement Act of 1997; and H.R. 2094, Beaches Environmental Assessment, Closure, and Health Act of 1997 **[105th Congress]**. Hearings have been scheduled for another bill, S. 669, Federal Facilities Clean Water Compliance Act of 1999 **[106th Congress].**

Thus, federal statutory requirements with nonpoint sources regulated by the Clean Water Act have not changed significantly since the Genskow paper was written during the 103rd Congress.

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
104th	S. 1316, Safe Drinking Water Act Amendments of 1996	Title IV authorizes EPA to provide technical and financial assistance to States, consistent with nonpoint management programs established under the Clean Water Act and clarifies that nothing in the act supersedes existing statutory guidance about nonpoint sources contained in the Clean Water Act.	Sec. 129 expands the waiver of sovereign immunity under the Safe Drinking Water Act (SDWA) to allow States to enforce compliance of delegated SDWA authorities by federal facilities through the imposition of fines and penalties. However, this enforcement authority arguably would not apply to nonpoint sources due to the language clarifying that the act does not supersede existing statutory guidance contained in the Clean Water Act.	Public Law 104-182
104th	H.R. 364, Federal Facilities Clean Water Compliance Act of 1995	Not Addressed	Amends the Clean Water Act to waive immunity of the United States with respect of Federal, State, interstate and local requirements, administrative authorities, sanctions, and penalties concerning water pollution control.	No Action
104th	H.R. 961, Clean Water Amendments of 1995	(Sec. 319) Revises the required elements of nonpoint source management programs and includes within such programs: (1) a schedule containing interim goals and milestones for making reasonable progress toward the attainment of standards; (2) a description of monitoring or assessment of program effectiveness; (3) an identification of activities on Federal lands that are inconsistent with such programs; and (4) an identification of goals and milestones for progress in attaining water quality standards, including a projected date for attaining such standards.	Sec. 316) Revises provisions regarding water pollution control at Federal facilities to waive the sovereign immunity of the United States with respect to any requirement, administrative authority, or sanctions that may be imposed for violations. Provides that Federal employees may be subject to criminal sanctions, but exempts Federal agencies from such sanctions. Authorizes the Administrator to commence administrative enforcement actions against Federal agencies under this Act. *(continued)*	Passed House 05/16/95

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
	H.R. 961, Clean Water Amendments of 1995 (cont.)	Title 10 gives coastal States the choice of participating either in the Federal Coastal Zone Management program, which requires enforceable plans for controlling nonpoint source pollution, or the general Federal nonpoint source pollution program, which allows States to rely on voluntary measures.	Includes Federal agencies in the definition of "person."	
104th	H.R. 1132, Nonpoint Source Water Pollution Prevention Act of 1995	Title I amends the Federal Water Pollution Control Act to require State Governors to revise nonpoint source management programs for purposes of achieving full restoration and protection of target watersheds. Directs State Governors to: (1) identify and prioritize target watersheds into five groups based on the severity of nonpoint source pollution problems; and (2) notify landowners and operators who conduct nonpoint source activities in first priority group watersheds that they will be required to implement site-level programs. Establishes requirements for site-level programs. Authorizes exemptions from requirements for site-level programs in cases of insignificant environmental degradation or severe economic hardship. Requires State watershed management programs to be approved by the Administrator of the Environmental Protection Agency and to achieve full restoration and protection of watersheds within eight years of implementation.	Title II: Nonpoint Source Prevention on Federal Lands - Requires the President to issue regulations for the prevention and control of nonpoint sources of pollution on Federal lands to provide for full restoration and protection of watersheds within eight years of issuance. Revises existing licenses or operational authorities to comply with regulations.	No Action

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
104th	H.R. 1400 Chlorine Zero Discharge Act of 1995	Within 18 months after the enactment of this section, the Administrator shall complete a report to Congress on nonpoint sources and industrial discharges of organochlorine compounds and their byproducts and metabolites into water.	Not Addressed	No Action
105th	S. 971, Beaches Environmental Assessment, Closure, and Health Act of 1997	Requires the Administrator of EPA to publish and revise regulations requiring monitoring of, and specifying available methods to be used by States to monitor, coastal recreation waters at beaches open for use by the public for compliance with applicable water quality criteria for those waters and protection of the public safety. Monitoring requirements established pursuant to this subsection shall, at a minimum— (3) specify the frequency and location of monitoring based on the proximity of coastal recreation waters to known or identified point and nonpoint sources of pollution and in relation to storm events;	Not Addressed	No Action
105th	S. 1222, Estuary Habitat Restoration Partnership Act of 1998	Not Addressed	Title II: Chesapeake Bay and Other Regional Initiatives - Requires any Federal agency that owns or operates a facility within the Bay watershed to participate in regional and subwatershed planning and restoration programs.	Passed Senate 10/14/98

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
105th	S. 1253, Public Lands Management Improvement Act of 1997	Not Addressed	(Sec. 204) Deems management activities on Federal lands which constitute a nonpoint source of water pollution certified by the State in which the Federal lands are located to meet best management practices to be in compliance with area wide waste treatment management plans and State nonpoint source management programs under the Clean Water Act.	Hearings Held – 10/30, 12/15/97;4/30, 5/5, 6/4, 6/17/98
105th	S. 1923, Federal Facilities Clean Water Compliance Act of 1998	Not Addressed	Amends the Federal Water Pollution Control Act to waive immunity of the United States with respect to Federal, State, interstate, and local requirements pertaining to water pollution control, including requirements for permits or reporting, injunctive relief, sanctions to enforce relief, payment of reasonable service charges, administrative orders, penalties or fines. Authorizes the Administrator of the Environmental Protection Agency, the Secretary of the Army, and the Secretary of the department in which the Coast Guard is operating to pursue enforcement actions against Federal agencies under the Act. Requires States, unless a State law or constitution requires otherwise, to use penalties collected from the Federal Government under the Act only for projects to improve or protect the environment or to defray the costs of environmental protection or enforcement. Includes Federal agencies in the definition of "person."	

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
105th	H.R. 550, Nonpoint Source Water Pollution Prevention Act of 1997	Title I amends the Federal Water Pollution Control Act to require State Governors to revise nonpoint source management programs for purposes of achieving full restoration and protection of target watersheds. Directs State Governors to: (1) identify and prioritize target watersheds into five groups based on the severity of nonpoint source pollution problems; and (2) notify landowners and operators who conduct nonpoint source activities in first priority group watersheds that they will be required to implement site-level programs. Establishes requirements for site-level programs. Authorizes exemptions from requirements for site-level programs in cases of insignificant environmental degradation or severe economic hardship. Requires State watershed management programs to be approved by the Administrator of the Environmental Protection Agency and to achieve full restoration and protection of watersheds within eight years of implementation.	Title II: Nonpoint Source Prevention on Federal Lands - Requires the President to issue regulations for the prevention and control of nonpoint sources of pollution on Federal lands to provide for full restoration and protection of watersheds within eight years of issuance. Revises existing licenses or operational authorities to comply with regulations.	No Action
105th	H.R. 1188, Zero Chlorine Discharge Act	Directs the Administrator of the Environmental Protection Agency to: (3) study and report to the Congress on nonpoint sources and industrial discharges of organochlorine compounds and their byproducts and metabolites into navigable waters;	Not Addressed	No Action

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
105th	H.R. 1194, Federal Facilities Clean Water Compliance Act of 1997	Not Addressed	Amends the Federal Water Pollution Control Act to require each Federal department, agency, and instrumentality to be subject to and comply with all Federal, State, and local requirements with respect to the control and abatement of water pollution and management in the same manner and extent as any person is subject to such requirements, including the payment of reasonable service charges. Waives immunity of the United States with respect to any such requirements.	No Action
105th	H.R. 1578, Chesapeake Bay Restoration Act of 1997	Not Addressed	Requires any Federal agency that owns or operates a facility within the Bay watershed to participate in regional and subwatershed planning and restoration programs.	No Action
105th	H.R. 2094, Beaches Environmental Assessment, Closure, and Health Act of 1997	Requires the Administrator of EPA to publish and revise regulations requiring monitoring of, and specifying available methods to be used by States to monitor, coastal recreation waters at beaches open for use by the public for compli-ance with applicable water quality criteria for those waters and protection of the public safety. Monitoring requirements established pursuant to this subsection shall, at a minimum— …..(3) specify the frequency and location of monitoring based on the proximity of coastal recreation waters to known or identified point and nonpoint sources of pollution and…storm events;	Not Addressed	Hearing held 8/6/98

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
105th	H.R. 2222, Federal Facilities Clean Water Compliance Act of 1997	Not Addressed	Amends the Federal Water Pollution Control Act (the Act) to waive immunity of the United States with respect to Federal, State, interstate, and local requirements, administrative authorities, sanctions, and penalties concerning water pollution control. …Permits the imposition of civil penalties or the issuance of compliance orders against Federal agencies determined to be in violation of specified water pollution control or permit requirements. Authorizes the suspension or revocation of permits. Permits the issuance of emergency administrative orders to, and penalties against, Federal agencies. Prohibits an administrative action commenced by the Administrator of the Environmental Protection Agency or the Secretary of the Army for violations by Federal facilities from precluding a civil enforcement action for the same violations. Permits citizen civil actions against Federal agencies alleged to have violated orders issued by the Administrator or the Secretary or that fail to pay a penalty within one year of the effective date of a final order. Includes Federal agencies in the definition of "person."	No Action

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
105th	H.R. 4634, Estuary Habitat Restoration Partnership Act of 1998	Not Addressed	Requires any Federal agency that owns or operates a facility within the Bay watershed to participate in regional and subwatershed planning and restoration programs.	No Action
106th	S. 492, Chesapeake Bay Restoration Act of 1999	Not Addressed	Requires any Federal agency that owns or operates a facility within the Bay watershed to: (1) participate in regional and subwatershed planning and restoration programs; and (2) report to the President and the Council on expenditures to carry out such programs.	Reported favorably by the Senate Cttee on Environ-ment and Public Works 9/29/99
106th	S. 522, Beaches Environmental Assessment, Closure, and Health Act of 1999	SEC. 704. COASTAL BEACH WATER QUALITY MONITORING –Requires the Administrator of EPA, not later than 1 year and 180 days after the date of enactment of this title, the Administrator shall promulgate regulations requiring monitoring by the States of public coastal recreation water and beaches for— …the proximity of coastal recreation water to known or identified point and nonpoint sources of pollution;	Not Addressed	Hearing held 7/22/99

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
106th	S. 669, Federal Facilities Clean Water Compliance Act of 1999	Not Addressed	Amends the Federal Water Pollution Control Act to waive immunity of the United States with respect to Federal, State, interstate, and local requirements pertaining to water pollution control, including requirements for permits or reporting, injunctive relief, sanctions to enforce relief, payment of reasonable service charges, administrative orders, and penalties or fines. Authorizes the Administrator of the EPA, the Secretary of the Army, and the Secretary of the department in which the Coast Guard is operating to pursue enforcement actions against Federal agencies. Requires States, unless a State law or constitution requires otherwise, to use penalties collected from the Federal Government under the Act only for projects to improve or protect the environment or to defray the costs of environmental protection or enforcement. Includes Federal agencies within the definition of "person." Authorizes citizen lawsuits for the collection of a penalty against a Federal agency assessed by the Administrator under the Act. Revises notice requirements to allow an action for a violation to be brought immediately after giving notice. [Ed. Note: Testimony had one non-point source reference relating to waste treatment programs for water conservation.]	Hearing scheduled 10/13/99 [Ed. Note: Held Oct 13, 1999]

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
106th	S. 1534, Coastal Zone Management Act of 1999	Requires the development of nonpoint coastal control plans	Federal agencies should coordinate with relevant State and local authorities to provide technical and financial assistance.	No Action
106th	H.R. 950, Beaches Environmental Assessment, Closure, and Health Act of 1999	SEC. 704. COASTAL BEACH WATER QUALITY MONITORING –Requires the Administrator of EPA, not later than 1 year and 180 days after the date of enactment of this title, the Administrator shall promulgate regulations requiring monitoring by the States of public coastal recreation water and beaches for— …the proximity of coastal recreation water to known or identified point and nonpoint sources of pollution;	Not Addressed	No Action
106th	H.R. 999, Beaches Environmental Assessment, Cleanup, and Health Act of 1999	Sec. 4 establishes a new criterion for EPA grants to a State or an Indian tribe— (VI) specifies the frequency and location of monitoring based on the proximity of such waters to known point or nonpoint sources of pollution and in relation to storm events.	Sec. 4 (C) FEDERAL AGENCY PROGRAMS- requires each Federal agency to develop, through a process that provides for public notice and an opportunity for comment, a program for monitoring and notification to protect public health and safety that meets the performance criteria established under subsection (a) for coastal recreation waters adjacent to beaches (or other points of access) that are open to the public and subject to the jurisdiction of the Federal agency. Each Federal agency program shall address the matters identified in subsection (b)(2)(B)(iii).	Passed House 4/22/99

Table 1: Legislation Dealing with the Clean Water Act, Nonpoint Sources, or Federal Facility Issues Associated with the CWA, 104th – 106th Congresses

Congress	Bill	Nonpoint Sources	Federal Facilities	Status
106th	H.R. 1110, Coastal Enhancement Act of 1999	Title III: Coastal Nonpoint Pollution – Includes coastal nonpoint pollution control programs within the objectives of administrative, coastal community conservation, and coastal zone enhancement grants. Sets aside specified amounts of administrative and coastal community conservation grants for nonpoint pollution control programs.	Sec. 102 requires the Federal government of assist eligible coastal states and qualified local entities in those States in identifying and obtaining from other Federal agencies technical and financial assistance in preserving, restoring, enhancing, or the creation of coastal habitats.	Hearing held 2/25/99
106th	H.R. 2108, Drinking Water Right-to-Know Act of 1999	Sec. 4. Source Water Assessments would amend the Safe Drinking Water Act to require the identification of nonpoint sources of pollution.	Not Addressed	No Action
106th	H.R. 2449, Federal Facilities Clean Water Compliance Act of 1999	Not Addressed	Amends the Act to require each Federal department, agency, and instrumentality to comply with all Federal, State, and local requirements with respect to the control and abatement of water pollution and management in the same manner and extent as any person is subject to such requirements, including the payment of reasonable service charges. Waives immunity of the United States. Authorizes the Administrator of the EPA, the Secretary of the Army, and the Secretary of the department in which the Coast Guard is operating to pursue enforcement actions under this Act. Requires States to use funds collected from the Federal Government under this Act only for projects designed to improve or protect the environment or to defray the costs of environmental protection or enforcement. Includes Feder-al agencies in the definition of "person."	No Action

LEGISLATIVE APPROACHES

From the foregoing summary of legislation since the 103rd Congress, three basic legislation approaches are being utilized that could lead to increased nonpoint source requirements for the Army and other federal agencies. The first approach would be a comprehensive reauthorization of the Clean Water Act. The Second approach would be to expand the waiver of sovereign immunity to enhance the ability of States to enforce emerging nonpoint source requirements against the Army and other federal agencies. Lastly, coastal zone or specific estuary related legislation could impose nonpoint source requirements on the Army and other federal agencies.

1. Comprehensive Reauthorization of the Clean Water Act to Address Nonpoint Sources

The last comprehensive reauthorization of the Clean Water Act was H.R. 961 in the 104th Congress. H.R. 961 addressed nonpoint sources of pollution and expanded the waiver of sovereign immunity for federal agencies to allow States to assess fines and penalties, as well as enhancing EPA's enforcement capabilities. However, H.R. 961 was opposed by the Clinton Administration and was not taken up in the Senate after it passed the House on a partisan vote of 240 to 185. Representative James Oberstar [D-MN] introduced two bills in the 104th and 105th Congress that would amend the Clean Water Act to address nonpoint sources, but no action was taken on those bills. The current political climate prior to the year 2000 elections and the controversial nature of dealing with nonpoint sources make it extremely unlikely that significant Clean Water Act legislation will be enacted in the 106th Congress.

2. Federal Facilities Clean Water Act Compliance Legislation

Since the 104th Congress, seven bills have been introduced that would expand the current waiver of sovereign immunity to enhance State enforcement of the Clean Water Act against federal facilities through the assessment of fines and penalties. In addition, such language was filed as an amendment to the National Defense Authorization Act, 1999, but never offered due to the opposition of the Senate floor managers. To date, no action has been taken on any of these stand-alone bills. However, the Senate Environment and Public Works Committee has scheduled a hearing of S. 669 on October 13, 1999 and that hearing may provide momentum for timely Senate consideration of such legislation. The enactment of such legislation would require the Army and other federal agencies to comply with emerging State standards on nonpoint sources even if federal requirements were not enacted. The prospects for the enactment of such legislation in the 106th Congress are uncertain.

3. Coastal Zone of Specified Estuary—Chesapeake Bay: Legislation

Eleven bills have been introduced since the 103rd Congress that deal with nonpoint sources of pollution affecting coastal zone water, estuaries, beaches, or specific bodies of water like the Chesapeake Bay. Six of these bills impose some new requirements on federal agencies, ranging from providing technical assistance, entering into cooperative agreements, or developing management plans. H.R. 999 has already passed the House and it is possible that the Senate could act on this bill during the 106th Congress. Nevertheless, these requirements are less burdensome and site specific than those associated with the other two legislative approaches.

CONCLUSION

No major federal legislation relating to nonpoint sources under the Clean Water Act has been enacted since the 103rd Congress. It is uncertain whether any such legislation will be enacted during the remainder of the 106th Congress.

The most likely prospect is the enactment of coastal zone or estuary related legislation to address nonpoint sources. Less likely, would be the enactment of federal facility Clean Water Act compliance legislation. According to the committees of jurisdiction, it is very unlikely that any comprehensive Clean Water Act legislation would be enacted in the 106th Congress.

Consequently, the imposition of new federal requirements on the Army in the foreseeable future is problematic. Therefore, concrete, statutory compliance requirements to deal with nonpoint sources are not likely to be available to secure funding for major initiatives in the Department of Defense budget process in the near term.

On the other hand, it seems inevitable that nonpoint sources will have to be addressed, as they represent the most serious threat to future water quality (emphasis added.)

Ongoing administrative and regulatory initiatives, or State programs, or the enactment of comprehensive federal requirements dealing with nonpoint sources are going to generate significant management and resource requirements affecting the Army and other federal agencies. Thus, even in the absence of concrete requirements today, prudence dictates that the Army and other federal agencies do what they can to ensure that current land management practices will facilitate the timely transition to compliance when stringent nonpoint source requirements are imposed in the outyears.

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[i] Kenneth D. Genskow, "Nonpoint Source Pollution: Implications of Clean Water Act Revisions on Army Combat Training and Land Management," submitted to the Army Environmental Policy Institute, August, 1994, executive summary.